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THE VALUE OF MODERN BLOOD CHEMISTRY TO THE CLINICIAN *

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The investigation of the chemistry of the blood during the past decade has brought us somewhat nearer to the elucidation of certain clinical problems. We know considerable of the etiology of diseases and still more of their end-results, their pathology. But as to the chemistry of their development and progress, little is known. Particularly is this true of the so-called endogenous, or, perhaps more correctly, the metabolic diseases. It is in the latter group that the most satisfactory chemical results have been obtained.

Certain metabolic alterations, notably the elimination of the catabolic products, are definitely determinable by laboratory methods; and no matter how divergent may be the views on points such as technic, interpretation of results, and consideration of normal or of physiologic factors varying the normal, the findings are valuable as indicating the nature of the disturbances in the process of the abnormal production or of the elimination of waste products. As to the actual seat of the disturbance in the body, one can but accept the results of blood and urine examinations as a link in the chain of evidence; and especially is this true of the early and the unusual or irregular cases of nephritis, cardiac or vascular disease.

In the chemical laboratory at Bellevue Hospital several thousand blood determinations are made annually, and embrace practically all disease conditions. From July, 1915, to April, 1917, approximately 15,000 analyses were made by one of us (Gettler) or under his direct supervision, and it is on some of these figures that our study, commenced a year ago, is based. We have examined all the charts and clinical records of these patients and, when available, the postmortem findings. Publication of the tables has been withheld because of the large space needed for them. Soon, however, we recognized the futility of attempting to group disease processes according to blood findings, with perhaps the exception of those diseases attended by disturbances in renal function, that is, the excretion of waste products. It might be of value to determine the blood constituents in patients afflicted with such comparatively mild diseases as gastritis, or even more severe conditions, such as the pneumonias, etc.; but as a routine procedure, we do not believe that blood analyses, as now practiced, furnish definite ideas unless the individual has some complicating condition in his excretory apparatus. For example, we have a large number of determinations on pneumonia patients, many of them under 30 years of age. The greater number of these cases show no definite retention, even in the chlorids, though the latter, as was pointed out by Carter, are not uncommonly diminished in the urine. In those cases in which there was retention of the nitrogenous products, there usually was an accompanying renal involvement, brought about by toxic products affecting the kidneys. We can safely assume, therefore, that the complicating nephritic lesion was the prime cause of this retention, and not the pneumonia. In those cases in which there was no note of any accompanying renal or cardiac lesion, perhaps some undetermined complication was present. The same applies to other diseases, not only of the respiratory system, but of other parts. Among these, acute yellow atrophy, exophthalmic goiter, syphilis, intestinal obstruction, pernicious anemia, diabetes with coma, fever, persistent vomiting, acute hemorrhage, esophageal stenosis, toxemias of pregnancy, septicemia and streptococcic meningitis were often found to have a slight rise in nonprotein nitrogen, but not in every case.

From the fact that so many disease conditions show a slight rise, we have attributed the cause to four factors:

1. Retention due to impaired kidneys (permanent nephritis; transient, by toxic substances).
2. Retention due to impaired circulation.
3. Abnormally large production, by the breaking down of body protein.
4. Increased intake of nitrogenous material.

In other words, the possibility of complications involving one or another of the metabolic functions of an organ, even if only of a transitory character, and especially if it involve the cardiorenal system, is always to be borne in mind before arriving at any conclusions on blood findings.

We concluded, therefore, that routine studies are of value only in such cases as nephritis and cardiac disease, and in cases of diabetes, furunculosis, carbuncles and gout; and it is primarily on these conditions that we desire to report, although a few others are perhaps worthy of mention. No attempts were made to study these patients on any of the special forms of diet. The blood was usually taken thirty-six hours

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after admission to the hospital, and after the patient had been on the restricted hospital diet, which is low in its protein content. The technic employed is the same as is now in general use. The values taken as normal are given in Table 1.

TABLE 1.—VALUES TAKEN AS NORMAL

	Mg. in 100 C.c.
Nonprotein nitrogen	From 25 to 40
Urea nitrogen	From 10 to 18
Creatinin	From 0.1 to 0.8
Uric acid	From 0.5 to 3.0
Sugar	From 60 to 110
Alkali reserve	From 53 to 80%

When the chief excretory organ, the kidney, becomes impaired and fails to eliminate the waste products, it is obvious that the degree of retention of these products may be of value in diagnosis and also in prognosis; and more particularly is this true of early cases, as is shown by numerous examples of the following description:

A patient, aged 50, with negative family and personal history, had lived a normal, quiet life, with no excesses in diet, alcohol, exercise, etc. Examination revealed a slightly accentuated aortic second sound, but was otherwise negative. The systolic blood pressure was 135 and the diastolic 95. The urine was pale, straw colored, with a specific gravity of 1.008, and with occasional hyaline casts, but was otherwise negative; the average amount was 2,000 c.c. a day. The blood findings on restricted diet showed nonprotein nitrogen, urea and creatinin somewhat increased. The functional kidney tests were negative.

It is this type of case that bears watching and care. Whether we wish to ascribe these cardiovascular, nephritic and degenerative processes to one of several etiologies, or, for lack of better knowledge, are willing to accept the view expressed by Bishop, that it is a general "poisoning" of all the cells of the body, we know this much, that the majority of such patients are definitely aided by restriction of their nitrogen metabolism and by calling on the accessory avenues of excretion. Definite improvement is noted by a simple subjective and objective examination, and can be measured in figures by a study of the blood chemistry.

NEPHRITIS

Nephritic cases, which include only primary nephritis, form the largest and most interesting group in our series. It is obviously impossible to list all of our cases, as they run into hundreds. Therefore, we are giving only the range between which our values lie (Table 2).

TABLE 2.—RANGE OF VALUES IN NEPHRITIS, TAKEN FROM 600 DETERMINATIONS

Nonprotein nitrogen	From 40 to 460 mg. in 100 c.c. of blood
Urea nitrogen	From 20 to 375 mg. in 100 c.c. of blood
Creatinin	From 2 to 42 mg. in 100 c.c. of blood
Uric acid	From 3 to 17 mg. in 100 c.c. of blood
Sugar	From 75 to 160 mg. in 100 c.c. of blood
Alkali reserve	From 40 to 75 per cent.

Because of the unsettled renal nomenclature, we have used in our conclusions the old classification of nephritis, that is, acute parenchymatous nephritis, chronic parenchymatous nephritis, and chronic interstitial nephritis.

Conclusions.—1. All the waste nitrogen products, nonprotein nitrogen, urea, creatinin and uric acid, are present in increased amounts in cases of true nephritis, and generally, but not invariably, present in greater concentration in the blood of those cases which are primarily considered as chronic interstitial nephritis (retention nephritis). This finding is in agreement with the results of practically all workers.

2. The degree of retention (when taking into account the functional efficiency of the cardiac muscle) is a direct criterion of the severity of the lesion.

3. We agree with Hopkins and Jonas that the sugar content in the blood is similarly increased in nephritis, and, at least in our cases, more marked in the patients suffering with the chronic parenchymatous form of the disease.

4. The alkali reserve is a valuable index of the degree of acidosis present. In our table, it runs considerably lower in the interstitial type of the disease. We would suggest that particular attention be paid to cases with low alkali reserve, as it becomes an important factor in the early recognition of uremia.

5. While we are not presenting figures, in attempting to correlate the clinical findings with the postmortem picture, we agree with Frothingham that there is no definite lesion of nephritis referable to a certain clinical picture. In other words, all the clinical and laboratory evidence in a nephritic patient may point to a certain form of the disease, but the postmortem examination is often not in agreement with the diagnosis made during life.

CARDIAC CONDITIONS

In our cardiac group we have included only those cases having primarily a true endocarditis or myocarditis, regardless of minor secondary involvements of other organs, and have eliminated all cases in which the question of primary cardiac involvement might be raised. It appears to us that the problem as to whether a person with heart disease has a complicating true nephritis, a nephrosis, or merely a renal congestion cannot be determined by chemical examination of the blood. The action of the heart, which is dependent on at least three important factors, namely, the condition of the heart muscle, the state of the nervous mechanism of the heart, and the peripheral influences under certain conditions, requires further study and more accurate physical methods of measurement before we can hope to establish its mechanical efficiency definitely.

TABLE 3.—RANGE OF VALUES IN CARDIAC CONDITIONS, TAKEN FROM ABOUT 350 DETERMINATIONS

Nonprotein nitrogen	From 35 to 220 mg. in 100 c.c. of blood
Urea nitrogen	From 18 to 180 mg. in 100 c.c. of blood
Creatinin	From 1.5 to 12 mg. in 100 c.c. of blood
Uric acid	From 2.5 to 7 mg. in 100 c.c. of blood
Sugar	From 70 to 135 mg. in 100 c.c. of blood
Alkali reserve	From 48 to 75 per cent.

A glance at the values of cardiacs (Table 3) presents nothing of interest except that in general the nitrogenous waste products in cardiac patients do not tend to accumulate in the blood to as high a degree as they do in nephritics; but this varies within wide limits in individual cases, many nephritics running even lower than cardiacs, and there are not a few cases of simple hypertension or hypertension accompanied by some minor change in the cardiac cycle that show no change in the chemical blood picture. Whether or not this retention is solely because of a poor heart muscle, or whether some slight nephritic change is responsible, is a matter still open to question. Judging from our necropsy experience, the hypothesis first expressed appears to be able to cause this retention.

Lewis,[1] Barcroft[2] and others have indicated the importance of studying the volatile and nonvolatile acid content of the blood, particularly in those cases which, for want of a better term, we may signify as cases of cardiac dyspnea. The subject as yet is too complicated to allow of conclusions, but it is worthy of further study.

GOUT

Our arthritic group contains only cases of gout.

TABLE 4.—RANGE OF VALUES IN ARTHRITIC GROUP (GOUT), TAKEN FROM ABOUT 120 DETERMINATIONS

Nonprotein nitrogen	From 30	to	55	mg. in 100 c.c. of blood
Urea nitrogen	From 15	to	35	mg. in 100 c.c. of blood
Creatinin	From 1	to	2.8	mg. in 100 c.c. of blood
Uric acid	From 1.5	to	8.5	mg. in 100 c.c. of blood
Sugar	From 85	to	140	mg. in 100 c.c. of blood
Alkali reserve	From 50	to	80	per cent.

Conclusions.—1. Our cases of gout as a general rule show some increase in the uric acid content of the blood, though some of the chronic cases were within normal limits from this standpoint.

2. The increase is more marked in the acute type of the disease.

3. Our findings are in agreement with Folin and Denis' statement that the uric acid content of the blood in cases of gout is abnormally high without a corresponding increase in the nonprotein nitrogen products of the blood; but the majority of our cases showed a slight but constant increase in the nonprotein nitrogen and creatinin.

4. We believe, as do McClure and Pratt, that an increase of uric acid in the blood, with the patient on a purin-free diet, may be a symptom, but is not diagnostic, of gout.

DIABETES, FURUNCULOSIS, CARBUNCLES, HYPERTHYROIDISM

An increased sugar content of the blood has invariably been found in the untreated cases of diabetes mellitus even without glycosuria. The onset of this condition can be detected in the blood a long time before sugar appears in the urine. It is now well known that because of the variability shown by many kidneys as to their sugar permeability, it is of greater importance to have a blood sugar determination than a determination of the urinary sugar content. The alkali reserve in these cases is also of inestimable importance in diagnosing the degree of acidosis.

The range of values of sugar in diabetes, taken from 800 determinations, has been from 105 to 1,010 mg. in 100 c.c. of blood; the alkali reserve, from 60 down to as low as 7 per cent. Similarly, there have been isolated reports of slightly increased amounts of sugar in furuncles, carbuncles, etc. In our experience, covering some fifty cases of carbuncles and furunculosis, all of severe grade not presenting the symptoms of diabetes mellitus (that is, polyphagia, polyuria, loss of weight and glycosuria), there invariably has been a hyperglycemia, some only of a slight degree, but nevertheless quite definite. It was surprising to see how rapidly these patients improved when they were placed on a carbohydrate-poor diet, in addition to local surgical treatment.

Cases of hyperthyroidism almost always show an increased sugar content of the blood. We believe, however, that this is of little pathologic significance, except that it indicates that the patient's metabolism is on a higher level than in a normal person, and that his reserve carbohydrate is being burnt up; hence the rapid loss of weight so frequently seen in these individuals.

SURGICAL RENAL LESIONS

While as a rule the functional kidney tests furnish us with clearer data in the so-called surgical kidney (multiple abscesses of the kidney, tuberculosis of the kidney, stone, etc.), it may be advisable, especially in elderly patients, to examine the degree of retention of their waste nitrogen products, for they will furnish, as Squier[3] pointed out, a guide to the operability of the individual.

ECLAMPSIA, PERNICIOUS VOMITING, ACUTE YELLOW ATROPHY OF THE LIVER, ETC.

In eclampsia, pernicious vomiting, acute yellow atrophy of the liver, etc., blood figures are of some value again, as indicative of the severity and progress of the lesion, and the same applies to those cases of poisoning which set up a destructive process in the organs of elimination (kidney and liver), for example, mercuric chlorid or arsenic poisoning. However, it must not be overlooked that in such cases of acute mercurial nephritis, we may have an enormous retention which may suddenly disappear, the patient recovering. While to our knowledge such patients have not been followed over a long period of years so as to determine their subsequent course, they are nevertheless apparently perfectly well several years later.

Blood studies on nervous diseases, such as the dystrophies, muscular atrophies, the psychoses and in cretins, have also been made, but results are not yet ready for publications.

GENERAL CONCLUSIONS AS TO VALUE OF BLOOD CHEMISTRY

So much has been written to date on blood chemistry, divergent views often being presented, that the clinician is at sea as to its clinical value. The question before him is, "What does it all mean?" As a result of some 15,000 determinations, the largest ever reported, we conclude that:

1. Kidney function may be ascertained by the increased values of nonprotein nitrogen, urea nitrogen, creatinin and uric acid; that is, whether a derangement in the elimination of the waste nitrogenous products exists.

2. The severity of this derangement can be ascertained.

3. Prognosis can be determined.

4. Hyperglycemia can be detected with certainty by the increased value of the blood sugar content, even in the very earliest stages of diabetes, when the urine is still free from sugar. It is advisable, therefore, to have a blood sugar determination made, even if no diabetic symptoms are apparent.

5. Acidosis and its degree can be determined by the decreased value of alkali reserve of the blood, as measured by the Van Slyke carbon dioxid apparatus.

6. Diagnosis in general, contrary to the views of several workers, is impossible with the blood picture alone. Only three conditions can be ascertained: First, an extremely high retention of nitrogenous substances means a renal involvement, which may be primary or secondary to cardiac; second, a high persistent

1. Lewis, Thomas: Lectures on the Heart, New York, Paul B. Hoeber, 1915.
2. Barcroft, Joseph: Respiratory Function of the Blood, New York, G. P. Putnam's Sons, 1914.
3. Squier, J. B.: Some Aspects of Renal Surgery, Surg., Gynec. and Obst., 1917, 24, 641.

blood sugar means a diabetic condition or a tendency thereto, and third, a low alkali reserve means acidosis. Small increases above normal in the nitrogenous values are not characteristic diagnostically, because we find them in scores of various conditions. As an aid in diagnosis to the entire clinical picture, blood chemistry is, of course, most valuable.

7. By reducing in the food of the patient the precursor of the particular substance found in excessive amounts in the blood, very good results are obtained. Especially interesting is this in cases of carbuncles and allied conditions. Here the blood sugar is abnormally high. By cutting down the carbohydrates in the diet the carbuncles clear up beautifully.

8. The practitioner is often met by cases with indefinite, undiagnosable symptoms, in otherwise healthy persons. A blood analysis reveals to him certain abnormalities which he can partially or wholly correct by corresponding diets, and the patients seem to feel much more comfortable, many of them remaining so indefinitely.

9. The chemistry of the blood is of particular practical importance in the toxemias of pregnancy; especially is this true of threatened eclampsia, in which the blood picture (increased amounts of nonprotein nitrogen bodies) indicates the course of treatment to be followed, so as to clear the organism of those retention products. The blood picture, according to the amount of retention, practically always is a safe guide as to the speed with which the uterus is to be emptied, thereby eliminating the focus of toxic absorption. Very often this can be accomplished even before the onset of convulsions.

10 Finally, it must not be overlooked that abnormally high values for nitrogenous waste products are not always due to kidney deficiency. When the values are only slightly higher than normal, a nonprotein nitrogen of from 50 to 60 mg. in 100 c.c. of blood may be due to an abnormally high destruction of body protein or a deficient circulation. In those cases in which the nonprotein nitrogen is very high, 80 or above, in our estimation, the only cause is kidney involvement.

Our fat and cholesterin experiments are in progress and will be reported at a later date.

Puerperal Sepsis in New York City.—According to the *Monthly Bulletin* in New York City during 1917 there were 141,564 births, of which 94,039, or 66.4 per cent., were reported by physicians, and 47,525, or 33.6 per cent., by midwives. Septicemia as a cause of death following childbirth was reported on 238 certificates, or 0.016 per cent. On investigation it was disclosed that 78 of these deaths occurred from sepsis following full time, normal labor; 33 were from sepsis following full time labor requiring operative procedure of some sort; 127 deaths were due to sepsis following premature labor. A comparison of the work of midwives and physicians shows that the midwives with 33.6 per cent. of the births had 35.89 per cent. of deaths from sepsis, while the physician with 66.4 per cent. of the labors had 59 per cent. of the deaths from sepsis following full time labor, a proportion only slightly higher for the midwives, and low for both when the total number of births is considered. The total number of deaths of full time patients in which some operative procedure was necessary was 33, and of these only 4 occurred in cases in which midwives were in attendance previous to the operation. In labors occurring before full term there were 122 deaths from sepsis, 107 among married women, 17 among unmarried women, 2 in widows and 1 in a divorced person. Of these, 53 were reported by the coroner as "abortion" and 12 as "miscarriage."

SPLANCHNOPTOSIS: ITS CAUSE, PREVENTION AND CURE

WITH SPECIAL REFERENCE TO THE DURET-ROVSING OPERATION

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PROLEGOMENON

In May, 1881,[1] Dr. Glénard of Lyons, France, made the observation that many cases of nervous diseases were accompanied by a prolapsed position of the stomach. He proved this by palpation and percussion, which were advanced by his technic to a degree hitherto unknown. He soon afterward found that the other abdominal structures were prone to prolapse, especially the transverse colon, and the right kidney. From the time of this discovery of Glénard we may very properly date an era in the development of the science of medicine.[2]

The profession of France very early recognized the importance of these observations, and we take a lively pleasure at this time of revision in bringing to light a statement made by Fereal, at a meeting of the Hospital Medical Society, Paris, Dec. 24, 1886. After discussing neurasthenia and enteroptosis, he thus proceeded:

> The studies of Glénard confirm the exactitude of the anatomic-physiologic ground which served for the basis of his studies. As to the application of these principles to pathology we must render homage to the original quality which the author has shown in their supposition. Glénard's language shows that he has profound faith and absolute conviction in the correctness of his views, and this is probably the secret of his therapeutic success.
>
> However we may think, French medical men, especially, should acclaim the new ideas emanating from Glénard, and not wait to give them welcome when they may be returned to us from the other side of the Rhine with a borrowed name.

SIGNIFICANCE OF PTOSIS NOT APPRECIATED

I am inclined to believe that the medical profession has not yet appreciated the importance of ptosis of the abdominal organs, or the success of the treatment of these conditions; and it is my object in this paper to call renewed attention to this subject.

Medical men seem prone to overlook the simple and obvious, and to delight in theorizing and speculating as to the cause of obscure disease. This is particularly true regarding neurasthenia and gastroptosis. Hundreds—yes, thousands—of women have been condemned to a miserable existence as hysterics or neurasthenics, who could be relieved if their abdominal ptosis were considered and relieved by bandages or operation. Rovsing says when the day for revision arrives nearly all the so-called nervous affections of the stomach will be found to be ptosis of the stomach. He makes a sharp distinction, which may not be justified, between cases occurring in the virgin, and in the married woman who has undergone several confinements.

THE SYMPTOMS OF GASTROPTOSIS

These patients, when they come for examination, usually exhibit the following conditions:

1. Emaciation.
2. Constipation, or diarrhea alternately with constipation.
3. Nervousness.

1. Note that the date of Glénard's first publication is 1881, not 1883, as usually given.
2. Glénard: Semaine méd., 1886.

4. They have pains coming on after being on foot several hours, and relief by lying down or by support of the hands or the bandages. These pains are not relieved by lying on the side.

5. Very often there is pulsation of the abdominal aorta, visible especially when in a standing position.

6. There is usually vomiting.

THE GLÉNARD SYNDROME

The Glénard syndrome has been expanded in the course of the years until it now embraces more or less completely the following:

A. 1. Splanchnoptosis.
2. Gastroptosis.
3. Enteroptosis.
4. Coloptosis.
5. Floating kidney.
6. Floating liver.
7. Floating spleen.
8. Mobile colon.
9. Hernias of all kinds.
10. Descensus diaphragmi.
11. Descensus cordis.
12. Varicocele.
13. Hemorrhoids.
14. Intestinal adhesions, kinks, etc., causing chronic constipation, intestinal catarrh, ulcers and strictures.
15. Prolapse of the female genital organs.

B. All nervous and mental disturbances resulting from the foregoing, such as neurasthenia, nervous depression and simulated heart disease.

These subdivisions are intimately related, and all deserve consideration; but our present study must be limited almost entirely to prolapse of the stomach and the large bowel. The possible causes of these conditions will be enumerated; the prevention of them will be considered; and some of the measures, physical and surgical, which have been devised for improving pathologic conditions will be detailed.

SHORT STATEMENT OF TOPICS

Much has developed since Glénard first promulgated his fundamental ideas. The one great instructive factor has been the roentgen ray; and from it we have learned that:

1. Only occasionally the stomach is seated in that portion of the abdominal cavity which old theory and anatomic textbooks provided for it. The same is true of the transverse colon.

2. Both sexes and all ages are prone to have displacement of these organs, but females over 30 are afflicted in proportion to males as 4:1.

3. Improper habits of eating and rushing to active labor after meals are probably conducive to prolapse.

4. The corsets and constricting belts of young girls cause weakness of the abdominal muscles, which fail to support the stomach and bowels.

5. High-heeled shoes and insufficient clothing of women are causing muscle strain and congestion of the abdominal contents.

6. The now fashionable constricting leather belts are working similar results in young men.

7. While it may seem to be true that some people have prolapsed organs without symptoms, it is probably much the same condition of affairs that exists when a loop of a bowel is in a hernial sack outside the natural cavity. This is always highly interesting and possibly dangerous.

8. There has been a complete change in our conception of the ordinary forms of colitis, and we now believe that these diseases, formerly considered of nervous origin, are primarily not nervous.

9. Many cases of abdominal prolapse can be cured by proper bandaging, posture and dieting, and no operative procedures should be attempted until these simple means have been tried. Especial warning should be given at this point, else we shall have operating perverts bring disrepute on this operation, as they have on appendectomy, etc.

10. Lane's plan of resecting large portions of bowel is only exceptionally necessary, and probably, when the proper attention is given to the early stages of intestinal disease, it will never be done.

11. Operations attaching the stomach and intestine to the abdominal wall are capable of giving good results, even if there are theoretical objections to their employment. Duret of Lille first performed a gastropexy with excellent results, but, unfortunately, this was not appreciated, and it remained for others to develop this operation, notably Rovsing of Copenhagen. My experience would seem to indicate that the operation is not difficult, and can be carried out in patients desperately emaciated, and that good results are often obtained.

12. Infections of the sinuses, teeth and tonsils are, in a great many cases, the cause of that "weakened condition" so often mentioned by authors. This "weakened condition" is responsible for the loss of tone of the muscles of the abdominal wall. The detection of these infections is best obtained by the roentgenogram.

RESTATEMENT AND AMPLIFICATION OF TOPICS

1. *Position of Stomach and Transverse Colon.*—The stomach and transverse colon seldom lie in ideal position. The revelations of the roentgen ray certainly came as a distinct surprise to the older surgeons who had been taught anatomy on the old lines. The illustrations of the more recent textbooks are misleading in this matter. The revelations of the fluoroscope and the roentgenogram are so uniform that we feel amply justified in the statement of the infrequency of the normal position of these organs.

2. *Sex and Age.*—Both sexes and all ages are affected, according to Albu. It seems that even newborn infants are prone to ptosis of the abdominal organs, and, strangely enough, girls are more prone to this condition than boys (11 per cent. boys and 44 per cent. girls).

Again, the aged are particularly prone to prolapses, owing to the bad habits of youth and middle life, to be detailed later.

Stiller[3] says that the Jewish and Slavic races are more prone to the affection than other races, and that residents of cities suffer more than country people.

3. *Habits of Eating.*—Improper habits of eating and failure to rest after meals conduce to prolapse. Any one who observes the daily life in the business centers of our large cities must be impressed with the rapidity with which food is devoured, washed down, usually, with copious drafts of ice water and topped off with ice cream or indigestible dessert. We cannot wonder that the overloaded stomach refuses to act, and "falls down" on the job. For a number of years, I was consulted by many trolley men and conductors on a large electric line who complained of dyspepsia. I

3. Stiller: Berlin. klin. Wchnschr., 1909, 1905, 1899.

found that these men carried, in their buckets, cold, indigestible foods, which they consumed while attending to their exacting duties. That the stomach rebelled was not remarkable.

A country physician's wife, to save her husband annoyance at mealtimes, answered all his telephone calls. Immediately the meal was finished she hastened to prepare her house for any patient who might appear, causing considerable physical and mental agitation during the mealtime and no rest afterward. The result, as might be expected, was a dilated and ptosed stomach. The complication in this case was an ethmoid sinus disease.

4. *Corseting of Young Girls.*—While there has been a certain amount of improvement in the construction of corsets, yet I believe it remains true that the tendency of these "straight jackets" is to squeeze the waist line and interfere with the proper functioning of the abdominal muscles, and thereby the natural support of the abdominal wall is lost. The weight of clothing, held in place by tight bands and strings at the waist line, often adds to the difficulty.

When a girl who has followed this custom comes to her pregnancy she has little muscular support for the wall; and she often supplies this by additional corsets and bandages. When the pregnancy is terminated, the muscles are permanently stretched and weakened, the abdominal contents drop, the uterus sags, varicose veins develop in the legs, hemorrhoidal veins of the rectum become enlarged, and she may became a neurasthenic invalid. All authors agree in laying an indictment against the corset.

5. *High-Heeled Shoes, High-Cut Skirts, and Insufficient Clothing.*—These are causing strain on the muscles and congestion of the abdominal organs. No argument is necessary to prove this.

6. *Clothing of Young Men.*—Suspenders are no longer fashionable for men. Warm underclothing is no longer fashionable. Thin-soled shoes, and no overshoes to protect the feet from cold and dampness, are the vogue. All these tend to ptosis of the abdominal organs. Should we not sound a note of warning?

7. *Prolapsed Organs Without Symptoms.*—We hear and read a great deal about persons having splanchnoptosis without knowing it. This may be true, but much in the same sense that we occasionally find individuals, even doctors of medicine, running around with loops of bowel in both inguinal canals, or even in the scrotum, doing their ordinary professional work. Our duty in such cases is always to warn of impending trouble, and to endeavor to correct the deformity and relieve the conditions causing it. To keep silence is sure to send the patient to an osteopath or a Christian scientist for relief of obscure pains, supposedly in the spinal column, on the one hand, or in the certainly weakened brain, on the other.

8. *Colitis.*—This is no longer to be considered a disease of nervous origin. In a recent work, Osler speaks of "true mucous colitis as a secretion neurosis of the large intestine, met with, particularly, in nervous and hysterical patients. Sometimes there are attacks of nervous diarrhea."

Niemeyer, in 1911, said:

> It is noticeable that the patient is almost always a nervous, hysterical or hypochondriacal individual. The noticeably frequent association of the disease with hysteria and neurasthenia seems to indicate nervous causes for the exaggerated production of mucus. The course of the disease depends on the character of the food taken, and the other nervous symptoms present. The treatment is local and chiefly for the care of the associated neurasthenia.

We believe that modern developments have shown these statements to be absolutely the reverse of true. We believe that the bowel condition usually caused by ptosis of the organs is the primary condition, and that the nervous and mental symptoms are the result. When the enteroptosis is relieved, the nervous and mental symptoms gradually disappear. In this connection it might be well to introduce the historic case of Sir William Treves, cited by Osler, as a case in which laparotomy was resorted to as a medical measure with alleged perfect results.

In a work published in 1898, Mr., now Sir., Frederick Treves[4] wrote:

> An unmarried lady of 30 consulted me with what she was assured was a stricture of the colon. She had the persistent pain and a very marked tenderness at a spot just above and to the left of the umbilicus, to which I have just referred. The stricture was supposed to be situated at this spot. She had frequent vomiting, which appeared in attacks. The vomited matter was small in amount and usually intensely acid. Her bowels were confined, and she described her motions as containing many strange and wondrous things. An examination of one of these remarkable stools revealed nothing unusual, except much undigested food and much mucus. The patient was thin and pallid. She was too weak to follow any other engrossing pursuit, but she had made a great study of her malady. The abdominal pain had begun ten years previously, and since that time she had had manifold illnesses. She had written out an account of these disorders with much care. They seem all to have been of an acute and exceptional character, and included malignant sore throat, internal abscess, spinal exhaustion, neuralgia, and certain smaller troubles. She had had uterine affections of bewildering complexity. She spoke of her kidneys with precision and of her liver with regret. The former organs were prone to unreasonable congestion, and the latter to an obstinacy which appears to have been little short of intelligent. She had been to many health resorts, and had taken medicine for the ten years concerned. She was certainly feeble, anemic, and intensely neurotic. The abdominal pain was, at times, agonizing; and her friends were driven to desperation by an illness which seemed unending and filled with tortures. The abdomen was flabby and revealed nothing beyond a general ptosis of the adbominal viscera of moderate degree.
>
> The kidneys were both slightly movable. As all medical measures had failed, as the patient was leading the miserable life of a chronic invalid, and as her friends were becoming convinced that "she must have something wrong," I consented to make an abdominal exploration. I found a general prolapse of the viscera of moderate but distinct degree; the stomach was perhaps a little dilated, but beyond this every organ in the abdomen was perfectly normal. The intestine was closely examined from the duodenum to the sigmoid flexure; it was perfectly normal.
>
> The exploration cured the patient of all her abdominal symptoms, even of the vomiting, and of the pain which had troubled her for ten years. I think it possible that the ptosis of the mass of intestines may have hindered the passage of food from the stomach in a trifling degree.
>
> This case, therefore, was one of uncomplicated visceroptosis with nervous phenomena in a very neurotic patient. Although the patient had never worn a belt, she was always worse when she moved about, and was only comfortable when in bed. A belt was worn after the operation.

Treves repeatedly refers to the mental effect of the operation. I look on this case as a well marked splanchnoptosis, and its cure not due to the operation or men-

4. Treves, in Allbutt: System of Medicine, 1898, 3.

tal effect at all, but to the rest in bed and appropriate bandaging afterward.

9. *Rest in Bed, Forced Feeding, Posture, Exercise and Proper Bandaging.*—These will relieve nearly all such cases. Usually, the first treatment required for splanchnoptosis is six weeks' rest in bed. The foot of the bed should be raised 12 inches, more or less, depending on the case. A trained nurse should be in attendance to give proper baths and massage. Since these patients are inclined to melancholy, a cheerful, hopeful nurse is essential. Much of the emaciation is due to fear of eating perfectly harmless foods, and they must be urged to eat, even if it causes gastralgia. The stomach has been lazy and must be forced to work. At least five meals a day must be taken. It is usually not desirable to give purgatives. A sun parlor or porch should be used if available, but the patient should be isolated from inquisitive friends or strangers. Complete mental and physical rest is necessary.

After a certain time the supporting bandage should be applied and the patient put on foot. The bandage known as the Comfort U, made for me by E. J. Fayart of Springfield, Ill., is an improved form of the supporter devised by Dr. Gallant of New York. It has certain advantages, which need not be minutely detailed. Suffice it to say that it usually supplies the required support. To this must be added rest in a reclining position for half an hour after each meal, with clothing and bandage loosened, and the foot of the couch or bed elevated. In due time light gymnastics, directed especially to improving the tone of the abdominal muscles and diaphragm, may be taken. We advise shoulders on the floor and hips on a couch, hanging by the knees on a horizontal bar, golf playing, croquet, tennis, etc. Automobile riding is usually painful and should not be permitted until the cure is perfected.

10. *Infrequent Necessity of Lane's Operation.*—Some fifteen years ago Metschnikoff pronounced the colon a useless portion of the intestinal tract. The truth of this statement has not been proved. Following this came the remarkable proposition of Arbuthnot Lane, to excise the greater part of the large bowel for all sorts of ailments. Fortunately, the profession did not hastily accept this dictum. It seems apparent now that it was too broad and sweeping. A few, but not many, patients should be subjected to the Lane operation. Careful attention to the early stages of splanchnoptosis will reduce these cases to the vanishing point.

11. *Gastropexy, First Advocated by Duret of Lille, and Promoted by Rovsing of Copenhagen.*—This operation offers in many cases a hope of relief. Having exhausted all other means of relief, and having proved by repeated studies with the bismuth meal and the roentgenograph that the ptosis exists, it is our duty to give the patient the benefit of the Duret-Rovsing operation.

Duret did a gastropexy in 1894. He reported his case to the Academy of Medicine, Paris, Oct. 2, 1894.

The patient was a woman of 51, who was afflicted with enteroptosis, together with dilatation and dropping of the stomach to the subumbilical region. All medical treatment having failed, a gastropexy was decided on. An exploration was made for a curable pyloric lesion, and, this being absent, the stomach itself was brought up and its anterior surface fixed to the abdominal wall. The incision was made through the skin and muscle from the ensiform process to the umbilicus. The peritoneum was only opened at the lower angle of the wound, and then fixed at the lesser curvature of the stomach to the untouched peritoneal surface, high up, with a single thread which led alternately in and out through the serosa covering the stomach and the parietal peritoneum. As a result of this simple procedure the stomach and intestinal functions were regulated, and the patient increased notably in weight. The stomach-splashing disappeared below the umbilicus, which proved that the fixation was complete. No roentgenoscopy was available at this date. Some neurasthenic symptoms remained for a time, but later entirely disappeared.

This observation showed that old cases of stomach prolapse could be greatly benefited by a simple operation, and the majority of the distressing symptoms would disappear. At a later session of the Academy (March 19, 1895), Professor Le Dentu reviewed the paper. Le Dentu expressed the opinion that fixation of a hollow organ, like the stomach or intestine, would have no influence on the symptoms, immediate or remote, depending on the mobility or ptosis of the organ. Besides, gastroptosis rarely exists alone, but is accompanied with enteroptosis, gastric ectasia, etc. In these cases gastropexy is evidently insufficient.

Again he said:

The operation is open to two other objections. The first is that, in fastening the pyloric end of the stomach in the epigastric region, we force the organ to bend itself, the median section not being brought back to the same level as the two tuberosities. The second objection is that the formation of adhesions between the stomach and the abdominal wall is not without inconvenience; therefore the operation presents serious chances of success only when the stomach is simply displaced. Even then it is doubtful if the operation will become popular.

It will be seen that the Duret operation was damned by faint praise, and, in effect, was killed where and when it should have been given serious consideration, for the patient was cured and lived many years in comfort. It remained for Professor Rovsing of Copenhagen to develop and extend the operation and prove to the profession that, contrary to any preconceived opinion, it should be given a trial. Rovsing has shown that in Denmark more than 256 gastropexies had been done up to 1911, and that cure, or great improvement, has been obtained in from 70 to 75 per cent., improvement in 10 to 12 per cent., no change in 11 to 12 per cent., and deaths in 3 to 5 per cent. These percentages are in round numbers

DESCRIPTION OF THE OPERATION

The usual incision for the stomach operation should be made, and should at least extend from the tip of the ensiform cartilage to the region of the umbilicus. The whole abdomen should be explored at once. The appendix should be removed if found diseased; the gallbladder emptied of stones if any are present, and excised if necessary; adhesions in any part should be examined, and eliminated if causing kinking or compression; the liver, if prolapsed, should be fixed by sutures to the peritoneal covering of the diaphragm, or the ligamentum teres should be severed and stitched to the diaphragm. Usually, the transverse colon must be brought into position by passing several sutures first through the serous coating of the colon, then in and out through the layers of the gastrocolic ligament, and finally through the serosa of the stomach along the greater curvature.

In doing this, one should be careful to avoid the blood vessels of the omentum. This brings the colon up close to the stomach. We are now ready to attach

the stomach to the abdominal wall. I now give the peritoneum of the stomach and of the abdominal wall a good rubbing with dry gauze to cause roughness and exudation. Rovsing advises scratching these surfaces with a needle. Three heavy silk sutures are passed in and out through the serosa, each thread parallel with the axis of the stomach. These threads are about three-quarters inch apart; one just under the lesser curvature, one three-quarters inch below this, and one 1¼ inches above the greater curvature. The ends of the threads are passed entirely through the abdominal wall, at a distance of about 1½ inches from the median line. The wound is closed in the usual manner; a glass plate about 3 by 4 inches in size, wrapped in sterile gauze, is clapped on the abdomen, and over this the stitches are tied. This, of course, is done to bring a broad, flat surface of stomach against a similar surface of the abdominal wall. These threads remain undisturbed for four weeks or until complete convalescence has taken place.

CASE HISTORIES

Case 1.—The patient was successfully treated by advice, posture, and treatment of ethmoid sinusitis. Mrs. Dr. C., housewife, of Rochester, Ill. Parents living in good health. One sister living in good health. Aged 35 years. Married. No children. First saw her, Feb. 14, 1908. Had typhoid fever in 1895; very mild attack. Bowels constipated. Menses regular. First noticed particular stomach trouble some months ago. Has had numerous attacks of indigestion, which lasted ten to twelve days. There was no regularity about these. Her husband would give her medicine, but the attacks would recur. Average weight, 150; present weight, 115. No fever with attacks. No kidney trouble. No vomiting. Seems to be extreme burning in throat and stomach, which would last four hours and sometimes much longer. If she starves seems to be better. Thinks she has fallen off, because she eats nothing.

Examination shows no tenderness over the gallbladder or in the appendical region. Prolapse of the stomach is well marked. No floating kidney. Teeth good. Tongue in fair condition. Patient states she hurries to remove dishes from the table so that the dining room would look well when patients visited the doctor. Also at mealtime she would answer telephone in order that the doctor might eat without interruption. She eats rapidly. Advise that she stop answering the telephone at meals. Let husband attend to this, as he is sturdy and strong. That she cover the dining table with a clean cloth, and lie down after meals for a half hour with hot water bag to epigastric region. Gave diet, February 21. Thirty days later she reports she has had no burning of the stomach whatever. What she has eaten seems to agree with her. Has excellent appetite. Has gained in flesh. Bowels not so constipated. Nervousness better. Tongue is very clean. Now, 1917, nearly ten years after this advice was given, she tells me that her health has been excellent and she weighs 125 pounds. Health perfect except for occasional rheumatism.

Case 2.—Gastroptosis successfully treated by posture and bandage. Paul G., aged 18, student, of Springfield, Ill. He began to show signs of failure in strength and flesh, presumably as a result of overwork at school. This was not relieved by a change of climate, but emaciation progressed until his weight became 107 or less. Thorough examination shows negative Wassermann. No tuberculosis. Heart weak. Tonsils diseased. Stomach low down in pelvis so that the stomach, filled with bismuth milk, could be felt with the finger through the rectum. The tonsils were removed under local anesthesia. The patient was put to bed for ten days with the foot of the bed elevated 16 inches. A corset was applied to hold up the stomach, which was only partly effective because of the extreme emaciation. About this time an article appeared in the *New York Medical Journal* showing a bandage designed by Dr. A. E. Gallant of New York, and one of these was fitted to this patient. Proper exercise was prescribed to improve the abdominal muscles, and after four months the patient was allowed to resume his studies. The case has progressed favorably, and the patient's present weight is 143 pounds.

Recent fluoroscopic examination shows the stomach at least 6 inches out of the pelvis. The abdominal muscles are strong, and indications are that a cure has resulted. I can highly recommend the Gallant bandage when an operation has been performed and when an attempt is made to elevate the stomach without an operation. I have prescribed at least 100 of these, and I think some 700 have been prescribed in central Illinois. A large number of patients have been benefited by this simple appliance. They are cheap, cleanly, have no rubber elastic to wear out, and in all particulars have proved satisfactory.

Case 3.—Long standing stomach ailment due to gastroptosis successfully treated by direct Duret-Rovsing separation. Mrs. Theodore D., housewife, of Springfield, Ill., aged 44; married; height 65 inches; weight 118 pounds; has weighed 145. Father died of typhoid, aged 30. Mother living in fair health. One brother living and healthy. Husband is living and in fair health. Three living healthy children. One infant died of erysipelas. No evidence of disease in mouth or air passages.

She says her abdominal symptoms date from the time when she clerked in a retail furniture store twenty years ago. Her hours of work were long; there was little time for meals; and she hurried back after eating, taking absolutely no rest after eating. She has had chronic constipation for years. She has taken a great deal of medicine for years, and lately has been confined to bed nearly all the time. Has had many spells of a hysterical nature, and has felt she would die, and has had a fear of falling all the time. She refused to go to the hospital for treatment. Her stomach has been washed out daily for two weeks without relief. She entered St. John's Hospital, June 13, 1917. Fluoroscopic examination shows the lower border of the stomach resting on the pelvic pan. The roentgenogram shows the characteristic stocking-shaped stomach.

Urine, 1.010, normal except a trace of indol; Wassermann, ++; blood, hemoglobin, 84; reds, 5,100,000; whites, 7,800; differential, 64 and 36. She was given four intravenous injections of arsphenamin, total amount 0.90, and four deep injections of mercuric salicylate, total 40 minims; and was given also two teaspoonfuls of mistura rhei et sodae in hot water before meals. No relief from vomiting, which was of daily occurrence. Finally she was deprived of all nourishment by the mouth, and given rectal feeding only. Vomiting began again after a few days. Her weight was reduced to 96 pounds, and the outlook was quite unfavorable.

A Rovsing operation was done, July 24, Dr. Kelly assisting. An incision was made from the sternum nearly to the pubes. Marked prolapse of the liver was found, marked adhesions about the gallbladder, and marked enlargement and prolapse of the stomach and colon. There was no disease of the gallbladder or of the appendix. The other organs appeared normal, and there was no apparent ulceration or disease of the stomach. Under these circumstances it was decided to break up all the old adhesions, and to anchor the stomach in its normal position as well as possible by the Rovsing method. The anterior surface of the stomach and the peritoneum of the abdominal wall were rubbed. Two of these complete sutures through the abdominal wall were inserted. The ascending colon by stitches through the abdominal wall was anchored in nearly the normal position. Another suture was placed about the middle of the transverse colon. A third suture was not placed in the pyloric region of the stomach because of the prolapsed liver. The patient left the table in good condition.

Vomiting began again the third day after operation, and was so violent that the lower part of the incision was opened. Owing to the critical condition of the patient the small intestine, which had prolapsed through the wound, was merely pushed back, and the wound drawn together with adhesive strapping and allowed to heal by granulation. Undoubtedly, there is a considerable adhesion at this point. She left the hospital, September 16, about seven weeks after the operation.

Her recovery has been slow, but steady, and she now weighs 130 pounds, a gain of 35 pounds. Her bowels move each day without a cathartic. She has an excellent appetite. She declares herself entirely well, and seems to be.

The patient was interviewed, May 20, 1918, and seemed well in every way except for occasional nervousness.

CASE 4.—Long standing stomach ailment due to gastroptosis successfully treated by Duret-Rovsing operation. Miss Hattie H., aged 49, housewife, of Waverly, Ill., weight, 94 pounds; entered hospital, Oct. 15, 1917. Family history rather negative. Father died of kidney disease at age of 70; mother died of heart disease at age of 63. One brother died of tuberculosis; one brother suicide at age of 37; one brother died a soldier in the Philippine Islands; one sister died in childbirth; one sister living at 27 is very nervous; four brothers are living in fair health.

She has had stomach trouble for thirty years. More particularly has suffered in the last six or eight years. Always had pains after meals. The last three weeks has taken only egg water and ice cream. A prominent physician in a neighboring city thought she had gallbladder trouble, and treated her for about one year.

On entrance she was so weak that it was necessary to have a sister support her on each side to get a fluoroscopic examination of the stomach. Examination resulted as follows: Wassermann, negative.

Urine: Specific gravity, 1.030; acid; otherwise negative. Blood: 66, 29, 4, 1; reds, 4,040,000; whites, 6,600; hemoglobin, 80. Feces: no blood; no ova; no tuberculosis; no parasites. Stomach contents: mucus on top; micro, negative; food, well digested. Free hydrochloric, 25; organic, 18; total acid, 55; comp. hydro, 15.

Fluoroscopic examination revealed a ragged outline of the stomach, which fails to empty after seven hours. The bowels are much distended with gas. There is also an infiltration in the lower left quadrant of the stomach which is associated with the infiltrated liver. The heart is somewhat atrophied. The stomach shows a very large amount of gas. The lower border extends down to 2 inches below the crest of the ilium. There seems to be considerable fixation of the tissues of the abdomen. There appeared to be a large amount of fluid in the stomach besides the fluid that had been ingested with the meal.

All conditions being considered, it was thought best to suggest an operation, which was agreed to on the theory that death was better than a continuance of life under the present conditions.

Operation was performed, Nov. 3, 1917. An incision was made from the sternum to below the umbilicus. The liver seemed prolapsed. The gallbladder was examined and found empty. The appendix seemed distended, and was removed. The transverse collapsed colon was sewed to the lower border of the stomach. Three sutures were placed according to Rovsing. The liver was displaced downward and would have been attached to the diaphragm had not the patient shown symptoms of collapse. The wound was brought together, and linen threads (not too heavy) were tied over the glass plate. Two small fibroid growths on the uterus were not removed. The ligatures through the stomach were removed at the end of twenty-three days.

The convalescence was unexpectedly rapid and satisfactory. This patient was seen July 22, 1918. She is keeping house for a brother and seems entirely free of her abdominal and nervous symptoms.

ABSTRACT OF DISCUSSION

DR. CARL E. BLACK, Jacksonville, Ill.: Since we are able to make roentgen-ray studies of these cases, the number has no doubt greatly increased. If anything can be done to take these cases out of the classification of neurasthenics and hysterics, give them a real pathologic basis and put the patients on a plan of treatment which will lead to a reasonable percentage of success, great good will be accomplished. I have been watching Dr. Kreider's cases and have been led to believe that a number of these patients should be treated with the Rovsing operation. The difficulty that I have is to know how to differentiate them. It is rare that there is simply a ptosis of the stomach and transverse colon. Usually the ptosis is more extensive than that, and combined with it there is usually a history of infection, which, no doubt, in a large percentage of cases, is an underlying factor. These patients are weakened by chronic infection, and the ptosis comes on gradually and insidiously following an infection. That infection may be in the abdomen or elsewhere. In the treatment of these patients it is necessary, first of all, to clear up as nearly as possible all of the foci of infection. I have seen a number of cases where by operating on the gallbladder or the appendix, especially an old chronic appendix with many adhesions, the symptoms disappear, although nothing was done for the ptosis. Some of the most startling successes I have had were achieved by putting these patients to bed, raising the foot of the bed and keeping them there six to eight weeks, following that by the use of a belt for support after they have gained 20, 30 or 40 pounds. One man treated in that way gained 45 pounds after eight or nine months, and now appears to be perfectly well. In that case the difficulty was largely aggravated by a bad habit of taking a quart or more of water the first thing in the morning. He seemed to think that he must drink water by the quart because he had certain digestive symptoms which undoubtedly aggravated his condition.

DR. GEORGE P. MÜLLER, Philadelphia: Dr. Kreider uses the term splanchnoptosis to cover the symptomatology of the type of cases referred to in his paper, and apparently advocates its treatment by suspending the stomach by the Rovsing operation. I believe it is necessary to take a more comprehensive view of the subject and to understand and distinguish between ptosis of the stomach, colon, kidney, cecum, etc. I believe that in the majority of cases the various types of visceroptosis are of congenital origin, and are not acquired by the wearing of tight corsets, high-heeled shoes, by faulty teeth, etc.; while these may bring on the symptoms due to the ptotic state. Some patients have ptosis of certain of the abdominal organs with gastric symptoms. Obviously, it is necessary to know whether the ptotic stomach per se is causing the gastric symptoms, or whether these are reflex to a retroverted uterus, to a mobile kidney, etc. I do not think much of the Rovsing operation, but prefer the Beyea operation, properly performed, and, in any event, do not do these operations unless careful roentgen-ray studies have shown that the ptotic stomach is of the so-called water-trap form, and is causing the symptoms from which the patient suffers.

DR. GEORGE N. KREIDER, Springfield, Ill.: I ask you to make in your nervous cases an observation of the stomach with the fluoroscope or roentgenograph, and you will get many surprises by finding that ptosis lies at the base of many nervous troubles, which are absolutely cured by this simple operation, or better still, without operation. I said distinctly, "Never operate on these patients if they can possibly be helped otherwise."

Reclassification of Athletics.—In a word, all branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and we must discard the old classification based on popularity and commercial advantage. In the grammar school the form of athletics to which a boy could be assigned or which he would be permitted to engage in would depend on (1) his family history; (2) his personal history, having regard especially to previous illnesses endured; (3) his physical status; (4) his particular type, height, weight, etc., in relation to age, etc. Every class would have its specially prescribed athletics, both physical and tactical, and under no circumstances would a lad be allowed to engage in competitive sports assigned to a class above or below his own. A physical examination would mark his entry to and exit from a class and he would be marked for development of body and for ability to perform the various tactics. While in the grammar school a chart would be begun for him which would accompany him throughout his educational career.—Lieut. D. F. Luby, *Naval Medical Bulletin*, October, 1918.

COMPARATIVE VALUE OF IPECAC AND ITS ALKALOIDS IN TREATMENT OF INTESTINAL ENDAMEBIASIS *

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There is universal concurrence of opinion at the present time in regard to the highly specific effect of ipecac, as well as of its constituent alkaloids, on the vegetative forms of the pathogenic endameba. Though the ipecacuanha plant, and especially its root, has been employed since remote times as an empiric remedy in the treatment of many varieties of intestinal disorders, it is only within comparatively recent years that recognition of its sole and distinctive value in endamebic disease has been definitely reached.

An interesting and diversified history surrounds the earlier use of ipecac as a therapeutic agent, traceable back as far even as the beginning of the Middle Ages. It was first introduced into Europe in 1648 in the guise of a secret remedy for dysentery, having gained considerable repute originally among the natives of Brazil for its usefulness in this class of affections. The story is related that the French government, impressed by the striking results obtained in the case of the Dauphin, son of Louis XIV, then reigning, was induced to purchase the secrets of the wonderful remedy outright, for universal dissemination. In the course of the years that have since followed, reaching to the present day, ipecac, in some one of its many forms, has weathered a shifting reputation for dependability in dysenteric disturbances, being lauded and denounced in turn by various authorities in almost as many climes.

During the period immediately preceding the close of the last century, the drug had fallen into almost complete disuse, doubtless because of the disagreeable effects which so often attended its administration. In the eyes of the more careful English observers in the tropics, however, ipecac had always maintained the foremost place as an indispensable measure for combating the dysenteries of warm countries, especially in India, and it is, in fact, due largely to the earnest pleas of this school, headed by the venerable Sir Patrick Manson, that credit should be accorded for rescuing the drug within recent years from all but entire oblivion.

Some ten years ago, being impressed by the weight of this authoritative experience and especially after I had previously convinced myself of the noneffectiveness of the various measures then in vogue against the all too prevalent endamebic infections in the South, I [1] ventured to make trial of the old-time ipecac treatment. The powdered root, made into pill form, was employed for the purpose, each pill being provided with an enteric coating of salol, in accordance with a previous suggestion of Rogers. The striking results which attended the trial of this treatment in a series of about fifty cases were subsequently summarized in a report read before this Association in 1909. A short time previous, George Dock[2] was able to report equally favorable results from observations made independently in the same field. Though confirmation of these experiences was soon recorded from numerous sources, objection to the method was raised on many sides mainly on the grounds of the clinical difficulties involved in the administration of large numbers of pills at one time, many of which were found not infrequently to pass through the bowel without dissolving. Likewise, the failure to control nausea and vomiting in some patients, in spite of a liberal enteric coating of the pill, called for additional unfavorable comment. These difficulties, which even today are still not entirely under satisfactory control, served at the time to disqualify the procedure in the eyes of a considerable element of the profession. Demand was made for a less cumbersome manner of employing the curative features of ipecac without entailing such great discomfort to the patient. The answer to this demand was not long withheld. In 1911, Vedder[3] and subsequently Rogers[4] were both able to report success in the therapy of endamebic infections with the use of emetin, an alkaloid derived directly from the crude ipecac root. This substance, in the form of the hydrochlorid salt, they found to be especially adapted to hypodermic administration and only rarely was emesis found to occur with its use. Likewise its prompt action on the clinical disturbances of the disease was most striking, and within a very short time the virtues of the parent drug were all but completely overshadowed and forgotten. With the course of time, however, evidence has accumulated which has tended to throw more and more doubt on the justice of many of the early claims regarding the superiority of emetins over the entire ipecac root, especially in the control of the more chronic and intractable endamebic infections. While no question can be raised of the prompt amebicidal action of emetin on the free living or vegetative organisms, more extended opportunity for observation has made it increasingly clear that, in the matter of the destruction of the endamebic cysts, the alkaloidal therapy in many instances meets with marked failures, thereby opening the way for repeated recurrences of the infection. A recasting of the earlier and more optimistic views, especially in regard to the absolute and complete specificity of emetin in endamebic disease would therefore seem to be necessary.

INADEQUACY OF EMETIN

Vedder,[5] himself, as early as 1913, was willing to admit that "a large percentage of cases treated with emetin continued to harbor the *Endemeba hystolytica* in the encysted and most dangerous form in the feces for some time." Likewise Allan,[6] Baermann,[7] Gaide and Mouzels,[8] and Marchoux,[9] each have reported in turn unfavorable results from their experience with the emetin treatment alone, claiming that "the endameba were not expelled from the intestinal tract to the degree that the relief of clinical symptoms would lead one to expect." Still more recently, Phillips[10] concluded an excellent review of the subject with the statement that "the effects of emetin are not perma-

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

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6. Allan, W.: The Emetin Treatment in Amebic Dysentery, THE JOURNAL A. M. A., March 1, 1913, p. 664.
7. Baermann: München med. Wchnschr., 1913, **60**, 1132.
8. Gaide and Mouzels: Bull. Soc. path. exot., 1913, **6**, 491.
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10. Phillips, L.: Brit. Med. Jour., 1914, **2**, 1061.

nent and that though the active amebia are killed off very quickly, the drug has no effect on the cysts." Again, G. I. Jones[11] says significantly, in summarizing a large number of cases placed at his disposal, that while he considers emetin a valuable agent in the treatment of intestinal amebiasis, "the use of this drug alone will not cure amebic dysentery." This author found, in fact, that relapses soon occurred and strongly urged the employment of ipecac by mouth, as a necessary step in the achievement of complete and permanent recovery. The results of these, as likewise of numerous similar observations which have been recorded in the literature with increasing frequency in recent years would seem to point unmistakably to the conclusion that, while emetin does prove of undoubted service in the destruction of the free living endamebas, it finds a greatly restricted field of usefulness in the all-important matter of the removal of the cysts from the intestinal tract.

A close analogy exists, in fact, between the *Endameba histolytica* and the malarial hematozoa in the matter of their behavior to specific medication. Both organisms, in common with protozoa in general, exhibit two separate and distinct phases in their life cycle, including a free living or vegetative stage of existence which permits of free locomotion enabling the cell to obtain its nutriment, and a second state in which the vital activities of the cell are found in abeyance within the enclosure of a cyst wall (the so-called gamete). It is only in the latter state that infection is conveyed from host to host, since the vegetative organism is prone to succumb or to undergo encystment when removed from its original environment. The pathologic conditions arising in the human organism are, however, the sole result of the vital manifestations of the free living protozoon. In its encysted state the organism lies dormant, incapable of tissue harm, but offering marked resistance to external influences. It is most important to understand, in this connection, that the protozoa, once having become encysted, have acquired thereby an increased resistance to their specific drug, in sharp contrast to the ease with which the organism in its vegetative state may be reached and destroyed in the same dosage. In fact, relatively small amounts of the specific drug, instead of killing the organism outright, will often induce the obverse effect of driving it into encystment. While the immediate clinical symptoms are promptly relieved by such a process, the difficulties surrounding the complete eradication of the infection are largely increased. In regard to malarial infections, the fact has already been well established, that relatively small amounts of quinin tend to encourage the formation of gametes. Similarly, in endamebic disease, unless appreciably large doses of ipecac or of its alkaloids are employed, the free living organism seeks protection against the toxic action of the drug by enclosing itself within a cyst wall.

In the dosage found necessary for the complete overwhelming of the offending organisms, consideration must be given to the matter of the toxicity of the drug itself on the human host. While the crude ipecac, in amounts as high as 75 grains in daily doses repeated over a period of ten days, has been found singularly devoid of toxic effects, experience has shown that the alkaloids, in an equivalent dosage, possess no such immunity.

11. Jones, G. I.: The Treatment of Intestinal Amebiasis, THE JOURNAL A. M. A., March 20, 1915, p. 982.

RESULTS OF INVESTIGATIONS

As far back as 1817, investigations into the pharmacology of ipecac had been made by Pelletier,[12] a French chemist. Pelletier believed that the root contained but one alkaloid, to which the name emetin was applied as a fit designation for the emetic properties exhibited by the drug. It was not until 1894 that Paul and Crownley[13] were able to show that the root contained a second active alkaloid, to which the term cephaelin was given. Subsequently, still another alkaloid, psychotrin, has been identified and it is not improbable that the future may reveal the presence of yet another derivative. In 1895, Wild[14] made an exhaustive study of the poisonous effect of both emetin and cephaelin on the human organism, as well as on some of the lower animals. Numerous other observations have been contributed within more recent years, serving further to enlarge our knowledge of this important subject. Perhaps the most notable among these have been the series of extensive experiments conducted by Pellini and Wallace[15] in 1916 into the various toxic effects produced by emetin on the various organs of the body. As a result of their findings, they were able to formulate the following conclusions:

1. Emetin depresses, and may eventually paralyze the heart.

2. It is a powerful gastro-intestinal irritant, whether given by mouth or by subcutaneous injection.

3. It causes a definite derangement of metabolism characterized by an increase in nitrogen loss and an acidosis.

4. While in normal individuals, given moderate doses, these actions may not be of importance, in pathologic states of the circulation, intestinal tract, or metabolism, there may be a very definite source of danger.

While it is true markedly poisonous effects are rarely observed in connection with the comparatively small doses of emetin ordinarily employed in clinical practice, milder types of toxemia are by no means uncommonly encountered. Lyons,[16] for example, as early as 1915, pointed out the not infrequent occurrence of a peripheral neuritis in the course of the ordinary subcutaneous administration of emetin. In my opinion, this complication may take place even with very small doses of the drug and, while rarely of a serious character, may nevertheless give rise to a considerable degree of pain and muscular discomfort. Other sequelae resulting from the use of emetin in average doses from time to time have been recorded in the literature, such as an intractable form of watery diarrhea, gastric hyperemia and irritability, cardiac arrhythmia, including in addition the various types of skin reactions which frequently appear at the site of the injection of the drug.

The investigations made in regard to the toxicology of cephaelin hydrochlorid, while not carried out on as extensive a scale as has been the case with emetin, have nevertheless revealed a close similarity in the physiologic action of the two alkaloids. Cephaelin has been shown to possess greater emetic properties and is far more irritating to the skin when given hypodermically than is emetin. Its destructive effects on the vegetative endameba is probably equally as great as

12. Pelletier: Ann. Chem. and Phys., 1817, **4**, 172.
13. Paul and Crownley: Phar. Jour., 1895, **25**, 111.
14. Wild: Lancet, 1895, **2**, 1274.
15. Pellini and Wallace: Amer. Jour. Med. Sc., 1916, **152**, 325.
16. Lyons, R.: Amer. Jour. Med. Sc., 1915, **150**, 97.

that of emetin. This was strongly indicated in the course of some clinical experiments I was enabled to make three years ago[17] on a limited number of adult subjects suffering with active intestinal amebiasis. However, the same failure in the matter of the destruction of the cysts was noted, as had been my experience previously with the emetin therapy.

Because of the failure of the ipecac alkaloids to remove encysted ameba from the tissues, and likewise in consideration of the toxic properties which have been shown to be inherent in these agents, attempts have been made recently to devise higher chemical formulas of the alkaloids which, it was thought, might overcome the various objectionable features of the simpler products.

Of these compounds perhaps the two most widely employed have been emetin mercuric iodid and emetin bismuthous iodid, prepared in accordance with definite formulas suggested by DuMez[18] in 1915. These substances were designed for oral administration and, because of their relative insolubility, it was hoped that their emetic effect might be reduced to a minimum. However, according to most observers, this hope has scarcely been realized. Much favorable comment has nevertheless appeared in the recent literature, emanating principally from British sources, extolling the special virtue of these preparations in the more intractable forms of endamebic dysentery and claiming a particular influence in the extermination of the carriers.

In this country, Walters and Koch[19] have recently published the results of experimental work carried on by them with synthetic derivatives of cephaelin, citing with particular favor cephaelin iso-amyl ether hydroiodid. They found this substance uniformly effective in destroying both the vegetative and the encystic endameba in the intestinal tract of cats. I have availed myself of the opportunity offered by Dr. Walters of trying out this preparation on human subjects, three in all, each presenting outspoken chronic endamebic infection of the bowel. Its action on the free living endameba proved it to be equal in value to that of the simple alkaloids, but again no definite effect could be noted in its action on the cysts. The dose employed was from ½ to ⅔ grain, three times a day in capsules by the mouth, and the treatment was made to cover a period of ten days in each case.

IPECAC TREATMENT

In view of the evident inadequacy of the akaloidal therapy and its failure effectually to destroy the endameba, once they have reached the encysted state, the conviction has grown increasingly strong with me that a return to the use of the original crude ipecac root should be most seriously considered by the profession at the present time. In my hands the plan first announced in 1909 of making use of ipecac in the form of enteric-coated pills has continued to yield uniformly gratifying results, both in meeting the active clinical manifestations of the disease processes and above all and perhaps of greatest importance, in the almost certain prevention of relapses which is achieved. The careful attention to detail which has been found so necessary to this plan of treatment, and which has unfortunately been an object of neglect on many sides in the past, would seem to justify a further word of explanation and emphasis at this time. The failure to observe the smaller details of the plan has been the cause, in fact, of much of the former prejudice surrounding the administration of the crude ipecac. First of all, it is essential that the patient be put to bed for the full course of the treatment, extending ordinarily over a period of ten days, and also that the dietary be restricted in the beginning to articles of food which leave no residue in the intestinal tract, such as broths, whey, albumin water and the various nutrient alcoholic preparations. To this list, milk is to be added only after the fifth or sixth day of treatment. A dose of castor oil should be administered on the morning of the first day of treatment and in the evening around 9 o'clock, from ten to fifteen salol-coated pills should be taken, each containing 5 grains of the powdered ipecac. The patient is advised to swallow these slowly with the help of moderate amounts of water. No nourishment is allowed for two hours preceding and likewise for six hours following the administration of the pills. Each succeeding night the same plan is to be repeated, the number of pills varying on each occasion from ten to fifteen. It may be found necessary, especially in the presence of any depressing effect, to discontinue the use of the pills for a one-night period. Each day the attending nurse keeps a record of the number of pills which might have passed undissolved in the stool, with the view of determining the total amount of ipecac retained at any stage of the treatment. A simple method of daily charting, illustrated in the accompanying table, has been devised by us for this purpose.

AMOUNT OF IPECAC ADMINISTERED AND RETAINED DAILY

Date	Pills Administered	Pills Found Undissolved in Stools	Pills Retained
Jan. 1	15	0	15
Jan. 2	15	2	28
Jan. 3	14	3	41

The complete dosage includes the retention of at least 100 pills, equivalent to 500 grains of the powdered ipecac. This is accomplished usually within a period of ten days and only under rare conditions must be made to extend over two weeks. Should nausea and vomiting arise as troublesome features, an extra enteric coating should be added to the pills. We have found that, under average conditions, a coating of one tenth inch of salol is ample. For reasons not altogether clear, it may happen that large numbers of the pills will pass through the intestinal tract in an undissolved state, even in spite of a diminished enteric coating. Under these circumstances, we frequently adopt the plan of making from one or two small punctures into the outer layers of the pill surface, with a small sized surgical needle. When, under rare conditions, the ipecac will not be tolerated in pill form by the patient, we may often successfully substitute the duodenal intubation method, employing for the purpose daily installations of 30 grains of the powdered ipecac suspended in water.

SUPERIORITY OF IPECAC

There remains to be considered finally the essential cause for the superior effectiveness shown by the entire ipecac root in the treatment of intestinal amebiasis, as compared with its constituent alkaloidal derivatives. From the standpoint of analogy with other therapeutic agents, it would seem that the active principles would, at least, possess a value equal to that of the parent substance. However, in the matter of the

17. Simon, S. K.: Tr. Am. Soc. Trop. Med., 1916.
18. DuMez, A. G.: Philippine Med. Jour., 1915, 8, 10, 73.
19. Walters and Koch: Jour. Pharmacol. and Exper. Therap., 1917, 10, 73.

control of a protracted endamebic infection of the bowel, conditions of a somewhat anomalous nature are presented. The crux of the problem, to my mind, hinges on the question of the degree of concentration of the active constituents of the specific drug at the site of infection in the large bowel. When the alkaloids are administered by hypodermic injection or by mouth within the confined limits of safety, the attenuation that results in the blood stream renders the drug relatively inert when brought to bear on the infecting organisms in the intestinal wall. Under the influence of a weak dilution, the endamebas escape immediate destruction by seeking cover, so to speak, within a resistant cyst wall. Were it possible to employ massive doses of the alkaloid, prompt and rapid annihilation of the endameba might be expected to ensue. The toxic character exhibited by these substances in excessive amounts precludes, however, the employment of a large dosage. With the use of the ipecac mass orally, in daily amounts as high as 75 grains and yielding approximately 1.5 grains of total alkaloids, a concentration of the effective properties of the drug is attained in the infected colon, without any possible danger of toxemia. The patient's intestinal tract, having been rendered free by dietary restrictions, as explained in the foregoing, the pills pass quickly into the large bowel, where the salol coating is finally dissolved away in its entirety and the ipecac thus set free for absorption. It may be considered that soluble compounds of the alkaloids are formed directly within the colon, and during the process of absorption not only the vegetative endameba, but the encysted forms as well, suffer destruction in the concentrated medium. Apart from whether this explanation be considered adequate or not, it is my firm conviction, based on clinical observations extending now over several years, that the treatment of intestinal endamebiasis by means of the crude ipecac offers a most promising outlook for complete and permanent cure, not attainable with the use of the alkaloids alone, whether administered orally or hypodermically.

CONCLUSIONS

1. Both ipecac and its constituent alkaloidal derivatives, emetin and cephaelin, have been found to act specifically on the vegetative or free living forms of the *Endameba histolytica*.

2. The crude ipecac root in doses sufficient completely to destroy the infecting organisms is never toxic.

3. Both emetin and cephaelin frequently exhibit toxic properties in an average dosage of from 0.5 to 1 grain daily over a limited period.

4. The alkaloids alone are ineffective within safe limits of dosage in destroying the encysted forms of the *Endameba histolytica*.

5. The entire ipecac root, when employed under proper conditions, not only destroys the vegetative endameba but the encysted forms as well, and thereby prevents recurrences or relapses of the infection.

ABSTRACT OF DISCUSSION

DR. FRANK SMITHIES, Chicago: I agree with Dr. Simon that the use of crude ipecac has been effectual in the treatment of acute or chronic enterocolonic amebiasis. Perhaps Dr. Simon unintentionally neglected to state that there are instances where emetin is also of service. I came to the conclusion some years ago that large doses of ipecac administered after the method described by Dr. Simon and first suggested by Dock, aided in quickly ridding the terminal ileum and the colon of organisms, if emetin be given hypodermically at the same time. Dr. Simon explained the reason for large doses of ipecac, namely, to obtain a continued saturation of the bowel contents with the drug. Often encysted or active amebas are deep within the mucous membrane of the intestinal wall. A medicine solely in the bowel cannot reach them and consequently does not kill them. It is in this class of case that it is necessary to carry the amebacide to the organism by means of the lymph or the blood stream; therefore, it is necessary to combine the ipecac treatment with emetin given hypodermically. Unless this is done, the bowel contents will be rid of protozoa but the organisms already in the wall of the intestine will carry on their destructive work. If one uses emetin alone, and neglects to use the ipecac saturation of bowel contents, it is self-evident that sooner or later the ulcers free from amebas will become reinfected from the bowel contents. The combined treatment is successful in curing the majority of patients, and prevents recurrences.

In respect to recurrences, I would emphasize the frequent finding of viable or encysted amebas in the gallbladder, appendix or old, partly healed intestinal ulcers. In these cases it sometimes is possible to remove the foci of infection surgically. I have seen several cases where there was complete recovery after the removal of the gallbladder. Further, it is my opinion that patients are too often pronounced cured; that the stools are not examined for a sufficiently long time after the administration of specific medication. Viable amebas and cysts are often present in the stools when the individual is symptomatically well. We have the patients return once every two or three months for reexamination of freshly passed stools. We never use castor oil as a preliminary cathartic but rather a saline. This enables the exact examination of the stool microscopically.

Recently we have been using ipecac by a new method, namely, the introduction of from 2 to 4 ounces of wine of ipecac directly into the colon by rectum. This has been effective where other methods of giving ipecac have failed. We have recently had two patients under observation in whom almost constant hemorrhage produced severe anemia. In this class of case we have employed transfusion of large quantities of whole blood beneficially. This procedure should be employed more frequently in order to increase tissue defense in severe amebic enterocolitis.

DR. HUGO A. FREUND, Detroit: My observations bear out what Dr. Simon said, that occasionally patients do not respond to ipecac. Having had a somewhat unsatisfactory experience with emetin and a very happy experience with ipecac, I thought of using the duodenal tube to give the wine of ipecac, preparing the patients much the same as Dr. Simon has suggested, except that at the end of about three days I give them a small dose of opium in some form to quiet them, so they will probably be constipated for two or three days following. I pass the duodenal tube on an empty stomach, and then inject the wine of ipecac. By the instillation of relatively large doses I get satisfactory results, beginning the first day by giving 1 ounce, the next day 2, and so on. I have given as high as 6 ounces in one instillation. I have had very satisfactory results in the fourteen cases I treated by this method. I reexamine them every three months, looking for encysted forms; and I have not seen a single relapse.

DR. HORACE W. SOPER, St. Louis: Since I adopted the use of emetin intravenously I have had fewer relapses. Two cases of neuritis developed, but they were mild, and very soon subsided. The emetin is injected in 1-grain doses, until the lesions have cleared up, as demonstrated by the sigmoidoscope. The lesions are very characteristic, small, elevated, grayish patches, which, when wiped off, leave a little bloody spot. The viscid mucus in these patches shows almost a pure culture of ameba. So that in the treatment of these cases we watch the lesions, and discontinue the emetin when the case is clinically improved. I give it once a week for two months, hoping to catch the encysted forms at the time of their development. The ipecac as used by Dr. Simon presents some disadvantages, inasmuch as the pills are very

difficult to make. Dr. Simon's pharmacist has, perhaps, solved that problem. Some years ago I was unable to get a pill that would not cause nausea or that would not dissolve in the intestinal tract.

DR. SIDNEY K. SIMON, New Orleans: The whole aim in the treatment of an endamebic infection lies in the removal of the cysts. The destruction of the vegetative forms alone, with the relief of clinical symptoms that follows, is in itself rarely a difficult problem. Putting the patient to bed for a period of a few days will usually suffice to relieve the immediate clinical distress even without the aid of other measures. It is only in the complete destruction of the encysted forms, however, that relapses can be prevented and a permanent cure established.

In regard to the examination of the stools, we long ago adopted the proctoscopic method in all cases of suspected protozoon infection. In this way the smears are made directly from ulcerated or denuded spots on the rectal mucosa, without the necessity of having the stools conveyed in bulk. The severe grades of anemia represent the end result of a protracted endamebic infection. With specific medication such a complication should rarely be observed. In the last few years, I have seen very few instances of severe anemia among my endameba cases.

Dr. Freund's ipecac method I intend to keep in mind. However, since the method I have described this morning has been uniformly successful as a curative measure in fully 500 cases, with very infrequent, if any, relapses, other plans do not, of course, make strong appeal. In regard to the intravenous injections of emetin hydrochlorid, mentioned by Dr. Soper, I would wish to advise caution. Such a procedure, especially in the hands of the less experienced, would be capable, I think, of much abuse.

The point Dr. Soper made concerning the availability of the salol coated ipecac pill has been a bone of contention ever since the method of treatment was inaugurated. Any competent pharmacist should be able to dispense these pills satisfactorily. However, a certain amount of technic is required which the average druggist does not seem to have acquired. The pills cannot be produced in bulk by the manufacturing pharmaceutical houses, because of the fully demonstrated lack of durability of the product. The pills must be made by the individual druggist and dispensed in quantities sufficient only for the individual case.

FOCAL INFECTIONS OF THE EYE FROM THE INTESTINAL TRACT*

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During the last few years marked attention has been paid to the consideration of infections of various parts of the body, due to a low-grade chronic infection in other parts, especially in the teeth and the tonsils. A very considerable advance has been made in the treatment of these so-called focal infections by the treatment of the original foci. The number of such cases on record is enormous and is fast increasing, and nowadays with certain infections we look for the primary cause and eradicate it if possible. Among these focal infections are some lesions of the eye that used to be grouped under a general classification, as "rheumatism," etc. We know now that there is probably no such disease as rheumatism per se, but that the symptoms classified as rheumatism are probably manifestations of some focus of infection. The work on focal infections of the eye, due to infections of the teeth and tonsils, has been reported by many observers and need not be touched on. This paper will deal with focal infections of the eye, due in all probability to the absorption of toxins from the intestinal tract. A few suggestions will also be made as to the method of treatment now being given a trial in order to overcome these infections, since it is impossible to treat the intestine surgically in the same way teeth and tonsils are treated.

This investigation has been going on for about two years, and any statements that are made are the outcome of what we have learned in that time, and are subject to change in the future. The whole idea of presenting the paper now is to direct attention to such infections and to possible methods of treating them.

At the beginning I was confronted with the fact that no two authorities were agreed as to what the intestinal contents in general should be; that is, the reaction, the amount of chemical constituents, the food detritus and the bacteriologic content. This was and still is a great difficulty. Some may question my interpretation of what normal intestinal contents should be, but from an examination of hundreds of samples, I have come to look for certain main characteristics.

Practically all authorities agree that normal feces is faintly alkaline to litmus, but litmus is a rough and ready method of taking the titration. With phenolphthalein the reaction is slightly acid, but only with fresh feces, because the reaction changes very rapidly on standing. The question of reaction is a very important one and one not easy to decide, as the end-point of acidity of alkalinity varies with the indicator used, namely, litmus, methyl orange, plenolphthalein, etc.

Just as in diabetes and nephritis the modern schools of medicine are aiming to test the efficiency of the body to assimilate the three food elements, namely, fats, carbohydrates and proteins, so I examined the detritus, keeping these three fundamental bases in mind. My guiding principle was to cut out of the diet the types of food that were not being assimilated, in other words, food elements whose by-products are indol, skatol and phenol. These products are normally present and unless abnormal in amount can be disregarded, but as the former two are known to be absorbed into the system, appearing as indican in the urine, and as they are products of protein metabolism, I paid special attention to them, as will be noted later.

BACTERIOLOGY

Here I was confronted with the biggest problem of all, as the intestine normally contains many and various forms of bacteria. I made no endeavor to identify the various forms of bacteria present, as that would have been impossible; but bearing in mind the work of various investigators, especially Metchnikoff, I paid special attention to the presence or absence of the colon bacillus. Now, the colon bacillus appears in the intestine a few days after birth, and is usually found there throughout life. Again, the colon bacillus is gram negative, that is, it stains a different color from that of the other bacteria usually found, the latter being gram positive with very few exceptions. Hence we have a ready means of comparison. The ptomain producers are usually gram-positive large bacilli, producing either acid or alkali, according to the group. Many of them are of the anaerobic varieties, such as the *Bacillus aerogenes-capsulatus*.

Keeping these facts in mind and trying to narrow the whole affair down to a practical working basis, I carried out the following routine: The intestinal contents were examined as to their reaction, their content

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

of indol and skatol, the food residue and the bacteria. Besides these cardinal principles, other side factors were noted. If the contents were found to be practically normal, these were noted as controls. In most of the patients examined, the contents could be classified under two headings, as to whether they were highly acid or alkaline. In both classes, the colon bacilli were either entirely absent or present only in very small numbers, the other bacteria being practically gram positive. This was true whether the reaction was to either extreme, since the colon bacillus cannot live in a highly acid medium, although it is an acid producer, and of course it is killed off in alkaline mediums. It was always found that in both highly acid and highly alkaline specimens the indol and skatol content was high, and there was always a high percentage of indican in the urine.

The following methods of treatment were then adopted. In the highly acid specimens, an endeavor was made to alkalize the contents by the use of irrigations of a 1 per cent. sodium carbonate solution and then to practice colon transplantation in order to approach the normal. At the same time the patients were put on rather free diet, cutting out those foods that were not completely assimilated, such as meat. In other words, the tolerance for the three fundamental foods was established as far as possible. In the highly alkaline specimens, irrigations with lactose were given and then the colon bacillus was transplanted. At the same time the Bulgarian bacilli were given by mouth, the whole idea being to approach the average normal. Lactose was also administered by mouth in such cases to provide a suitable pabulum for the colon bacilli. At stated intervals, examinations were made and the treatment was repeated until I got a good growth of colon bacilli.

The types of cases I have chosen to be reported are those that would not respond to any other form of treatment—cases in which the patients were thought to be focally infected, although treatment of the teeth and tonsils proved unavailing. They are all cases that had lasted for weeks, the patients being better one day and worse another, showing no real improvement.

REPORT OF CASES

CASE 1.—Charles B. had lost the sight of the right eye on account of a low grade ulcerative keratitis that had lasted six months and left the eye in a badly damaged condition, with the pupillary area of the cornea covered with a macular scar. He had been treated for this eye by some of the best ophthalmologists in the city and had been an in-patient at one of our hospitals for weeks. When I saw him, he had been in our wards for some weeks with the same condition in the other eye, the history of this lesion dating back two months. Every test had been negative and he was put on antispecific treatment, as it seemed the most promising remedy. On taking his history, I elicited the fact that he had had intestinal poisoning for years and could not get any relief. He volunteered the information that the other eye had become quiet as soon as he had gone to a stomach specialist. At first examination, the condition of the eye revealed a diffuse low grade keratitis, with a low grade iridocyclitis. In spite of all measures, the pupil could not be kept dilated but would dilate under the atropin and then contract again. One noticeable point was that the man's face was covered with acne rosacea. Immediate examination of the intestinal contents revealed a reaction highly alkaline, indol and skatol +++++, and bacterial smears totally gram positive. The treatment outlined in the foregoing was carried out, and within two days, the condition of the eye was much better, the pupil remaining dilated under cycloplegia. Within a week he went home with a perfectly quiet eye. The acne cleared up and when he last reported, after six months, he was in excellent condition, with a perfectly serviceable eye.

CASE 2.—J. Mc., a man, had suffered nine months from a plastic iritis of low grade in both eyes, which kept him from business and made a semi-invalid of him. He had been under the care of competent ophthalmologists in the city, had had his teeth roentgenographed and the diseased teeth removed, and had had his tonsils out, yet the condition persisted. The same condition was found here. Within eight days the eyes had quieted down and, according to the last report I had, some months after the lesion, he was in excellent condition.

CASE 3.—Mr. S., Orange, N. J., consulted me about his eye. He was suffering from an intense plastic iritis that had lasted two months, and he had had all the accepted methods of treatment. His condition cleared up rapidly with the treatment outlined for highly acid stools.

COMMENT

By far the largest number of cases of choroiditis, retinitis, iridocyclitis, glaucoma and the like I have diagnosed as to the condition present, but I cannot go any further in the etiology or in the treatment. The cases run their course in spite of the treatment adopted. It would be the ideal condition if we could take such cases and study them extensively so as to arrive at the cause. The reference of eye infections to the intestinal tract is not new, as evidenced by the article of such writers as Herter and Smith, published in 1894, describing their cases of ophthalmoplegia, low grade conjunctivitis, etc., which were cured by treatment of the intestinal tract. My attention was called to this article by Dr. Coffin, who was incidentally the means of directing my attention to the intestinal tract.

I do not claim that my work is new. It is simply an experiment. But the results in the series of sixty-seven cases I have treated were in the main very striking, and it seemed well worth while to work along these lines.

ABSTRACT OF DISCUSSION

DR. EDGAR S. THOMSON, New York: Focal infection of the eye attracts attention most frequently in connection with uveal disease. Its intractability and tendency to relapse are well known. Cases of iritis and cyclitis relapse in spite of the greatest care and the most careful control. The baneful influence of the digestive tract, especially the intestinal tract, has long been recognized, and treatment has often been productive of good results, but the question has not been placed on an exact basis. The exact method mentioned by the essayist has not been employed. Intestinal vaccines have been used, and cultures of acid-producing bacilli have been given, chiefly by mouth, but with no very exact checking up of results, at least in ophthalmic work. Judging by clinical experience, the most important single factor in the examination of the feces is the determination of the reaction. A low acid reaction is the most desirable balance for reducing putrefaction and for establishing the cultures of colon bacilli, and, given these two factors, the fermentative processes remain more stable and the local condition in the eye does not recur. In our cases the local symptoms in the eye apparently have kept pace with the intestinal condition. Manifestly toxic conditions—iritis, cyclitis and choroiditis—have improved rapidly, and in the majority of cases have not relapsed in the time during which we used the method. The course of the disease has in general been much shortened and local absorption of precipitates and exudates has gone on in a way that was suggestive of a "cut-off" in the toxin supply. A few cases of optic neuritis and episcleritis have been affected very favorably. Certain forms of keratitis, associated with slow tissue repair, and low hemoglobin percentage, have done remarkably well. A few cases of intractable ciliary cramp have been affected very favoraby.

DR. HIRAM WOODS, Baltimore:: There is no doubt that there is a sufficiently intimate association between gastro-intestinal disorders and these intractable cases of uveitis and recurrent ciliary cramp to justify the suspicion of cause and effect. Those of us who have had clinical experience in studying these cases can appreciate the value of Dr. Dwyer's paper, provided the claim is confirmed. He brings us down to two very definite things, which we ought to get clearly in our minds, the hyperacidity on the one hand, and the hyper-alkalinity on the other hand, plus the absence of the colon bacillus. If these are definite diagnostic points, we have something far more reliable to go on than we have ever had before.

MAJOR HARRY S. GRADLE, Chicago: I believe that absorption from the intestinal tract, as Dr. Dwyer said, plays a far greater rôle in the etiology of various ocular diseases than we have been willing to acknowledge for some time. We are dealing with an absorption of toxins from the intestinal tract, which affects an organ unable to withstand the influence of these toxins. Toxins in the intestines normally result from the breaking down of the various protein constituents of the food. There are few types of absorption, the abnormal absorption of normal toxins, and the absorption of abnormal toxins. By that I mean, in the first case, the excessive production and absorption of toxins from the intestinal tract, more than it is accustomed to (usually the result of a more or less chronic constipation); and, second, distubrances in metabolism, resulting in the production of abnormal toxins, that the human system is not at all accustomed to, and has no power of protecting itself against. The cases require radically different treatment. We must establish a normal passage through the intestines and eliminate the hyperproduction of the so-called normal toxins, and we must correct the disturbance of metabolism that results in the production of the abnormal toxins.

DR. CLARK W. HAWLEY, Chicago: The analysis of feces is important. I have been advocating the study of the relation of uveal tract disease and the toxins from the lower bowel for a number of years. My first discovery of a relation between uveal tract disease and toxins from the lower bowel was in my own case. I was suffering from a slowly increasing chronic cyclitis of both eyes and supposed I was getting blind, or nearly so. I was treating an autointoxication following a very severe case of facial erysipelas and soon discovered that my eyes were improving. This led me to believe that there might be a relationship between the two. Since then many cases have been treated along the same lines with as good results. I have been surprised at the number of cases of inflammatory glaucoma which were due to these toxins. Six patients treated remain cured.

MAJOR WALTER B. LANCASTER, Boston: I was surprised that the writer in enumerating the foci of infection outside the intestines limited himself to the teeth and tonsils. There are many other foci of infection which affect the eye secondarily. I have been very slow to accept the theory that these ocular inflammations arise from the intestines. I have inclined toward the theory that the ocular condition is of bacterial origin, the micro-organisms gaining access through the blood stream. This was well illustrated in one case in which the seminal vesicles acted as an infection focus.

DR. WILL WALTER, Chicago: There is no authority for the thought that the colon bacillus is infecting the intestinal tract in these cases, and it must not be forgotten that the liver intervenes between the absorbed intestinal contents and the general circulation. A focal infection means a tissue infection the chemic or bacteriologic elements of which are carried by the blood stream to areas more or less remote, where they set up inflammatory changes. Patients suffering from intestinal toxemia often show little indican or none. Whether there is present in these cases another toxin than that included in the indoxyl sulphates, and hence not shown by the tests for indican; or where there are elements which alter the tests in these cases; or whether, as I think most probable, the hepatic functions are neutralizing or altering these toxins, is not clear.

DR. JAMES G. DWYER, New York: The term "infection" does not mean the presence of bacteria in the blood. Bacteria produce protein toxins, and we have the phenomenon of anaphylaxis. We can produce the anaphylactic phenomenon in the body by simple extraction from bacteria, whether they are pathogenic or not. With regard to the liver: Work has been done showing that the extracts of spleen, of heart, of lung, etc., are nontoxic, but there is a toxic quality in the liver, because it takes up these toxins. It does not matter whether the toxin comes from putrefactive organisms. We are not dealing with infections from the colon bacillus. That is exactly the opposite of what I am trying to bring out. The three common foci are usually the teeth, the tonsils and the intestinal tract. I do not know that we are far enough advanced to identify what are normal protein products and what are abnormal. The point I wish to bring out is this, that the reason the joints and the eyes are affected is in all probability because we have a very sudden change from blood supply to lymph supply. In the uveal tract we have an ideal condition of lymphatic supply.

EARLY DIAGNOSIS OF CEREBROSPINAL MENINGITIS BY THE EXAMINATION OF STAINED BLOOD FILMS

REPORT OF A CASE *

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SAN JUAN, P. R.

According to the clinical notes furnished me by Dr. N. Doval of San Juan, Porto, Rico, the attending physician, A. B., a mulatto girl, aged 4½ years, native and resident of San Juan, who had never had any serious illness, and whose family history was unimportant, after a slight rhinitis lasting several days, without fever or any particular discomfort, complained of headache and severe pain in the right shoulder. This was about 6 p. m. Later she was noticed to have high fever. When first seen by Dr. Doval, at 8 o'clock, the temperature was 39.8 C. (103.6 F.); pulse, 130, and respiration, 28. She had vomited several times. About midnight, convulsions began and continued several hours; there were clonic spasms of short duration. The temperature was 40.2 C. (104.4 F.), the pulse weak and uncountable. The patient vomited a dark colored fluid.

I first saw the patient at 8 a. m. She was then in coma; the extremities were cold; there was no pulse. On the cheeks, arms and body were several irregular and indefinite areas slightly darker than the normally dark skin. Supposing this to be a beginning hemorrhagic eruption (later confirmed), I made a tentative diagnosis of cerebrospinal meningitis. Two small drops of blood were squeezed from a puncture in the lobe of the ear, but the peripheral circulation had so nearly stopped that no more could be obtained. These were used for making two smears on slides. A syringe for making lumbar puncture was not at hand, and the patient died before the laboratory assistant sent to do the lumbar puncture arrived at the house.

Death occurred at 9 a. m., about fifteen hours after onset.

At the laboratory, a slide was immediately stained with Leishman's stain. The enormous number of leukocytes attracted attention at once, and then it was seen that some of the polymorphonuclear neutrophils contained a diplococcus resembling the meningococcus. The second slide was stained by the Gram method controlled by the simultaneous staining of a known gram-positive coccus, and the diplococci were seen to be gram-negative. On these points, the diagnosis of cerebrospinal meningitis was regarded as confirmed.

Necropsy was refused, but permission was finally given to make punctures to obtain blood, and to make a small opening into the spinal canal. This was done five hours after death, and 15 or 20 c.c. of blood were secured from the right heart, basilar meninges and dorsal region of the spinal canal, all

* From the laboratory of the Institute of Tropical Medicine and Hygiene of Porto Rico.

of which were filled with dark fluid blood. Lumbar puncture failed to obtain blood or fluid, although the point of the needle seemed to be free in the cavity. A large number of cultures were made in ascitic bouillon, and on ascitic agar and blood-serum agar, and many smears also were made from each sample of blood. All cultures remained sterile, and prolonged search of the stained slides failed to show a single diplococcus. The meninges, as seen through a small opening in the dorsal region, appeared intensely injected without signs of any exudate. After death, the areas of darker skin were clearly hemorrhagic and more numerous than in life. In size they varied from mere points to several centimeters in diameter.

The diagnosis in this case was particularly important because the case occurred in a populous part of the city, and the rapidity with which death took place attracted considerable notice and alarm. It occurred at the time (November, 1916) when public apprehension had been much aroused by the epidemic of poliomyelitis in New York, a port with which San Juan has frequent steamer connections. The outbreak of bubonic plague in Porto Rico in 1912 was by no means forgotten. Rapidly fatal malaria occurs in the island, though fortunately it is rare, and the child, so far as known, had not been in a malarious district. That it was true typhus fever was less likely, as this is a rare disease in warm countries, and never reported in Porto Rico, yet it seems possible that it might occur. Hemorrhagic smallpox was not improbable in view of the prevalence of smallpox during the previous year. Cerebrospinal meningitis in sporadic cases is occasionally seen.

Meningococcus in blood film, within neutrophil.

There seems little doubt that the diplococcus seen in the blood films was the meningococcus. It was characteristic in size, morphology and staining reaction, and in its limitation within the cells. In a count of 1,000 polymorphonuclear neutrophils, 3.7 per cent. showed the diplococcus, sometimes only one or two pairs but generally in fair quantity; not infrequently the cell was thickly crowded with them. The photomicrograph was taken from an average specimen. No extracellular organisms were seen.

Sufficient blood could not be obtained to make a total count of the leukocytes, but their great abundance in the stained specimen indicated a very high leukocytosis. The differential count of 500 leukocytes revealed: polymorphonuclear neutrophils, 62.0; small lymphocytes, 6.4; large lymphocytes, 2.8; large mononuclears, 24.0; transitionals, 4.0; eosinophils, 0.8; basophils, 0. The Arneth formula was: Class I, 43; Class II, 33; Class III, 20; Class IV, 4; Class V, 0; index (Arneth), 76; (Bushnell and Treuholz) 86, a considerable shift to the left. It must be remembered that this blood was taken during the last hour of life when the circulation had become very sluggish, and it is probable that the blood picture shown was not that of a few hours earlier. It is given as noted, but it is of comparatively little importance beside the fact of the presence of the meningococcus, which made accurate diagnosis possible.

It is now generally accepted that the meningococcus passes to the blood from the mucous membrane of the nasopharynx and produces a primary blood infection to which the meningitis is secondary. This view has been emphasized recently by Herrick,[1] Medlar[2] and Thomsen and Wulff,[3] but they apparently did not utilize this "meningococcus sepsis" or bacteremia for early and rapid diagnosis by search for the diplococcus in stained blood films. Thomsen and Wulff used blood cultures and concluded that the number of meningococci in the blood may not be very large, and that they may not remain long in the blood stream. Elser[4] had previously expressed the same opinion.

Some months after seeing the foregoing case, I had the opportunity of looking over the literature of meningitis at the Surgeon-General's Library in Washington, D. C., and I found but one reference to the use of blood films for diagnosis in this disease. Horder,[5] in speaking of the diagnosis with reference to "superacute" cases, says that the examination of blood films may prove the nature of the case; presumably by finding the meningococcus. That this method has not been used more is due apparently to the belief that the organisms are too few in number in the blood stream for ready demonstration, and this belief seems based on the comparatively few colonies or negative findings after cultures have been made of considerable quantities of blood.

The presence of so many meningococci in the films from this case shows that they may be numerous in the peripheral circulation, and suggests that in other cases they may be in sufficient number for diagnostic purposes. It also brings up the possibility that cultures may give an erroneous impression as to the number present in this situation. Aside from the technical difficulties of making cultures of the meningococcus, there may be other reasons why cultural results may not be a true index to the number of meningococci in the circulating blood. The antimeningococcic serum produced by the response of the system to the infection is bacteriolytic, opsonic and antitoxic (Frost[6]), and its opsonic action is so promptly manifested that the meningococcus is found characteristically within the cells (phagocytes). Phagocytosis being a step toward the destruction of the invader, a phagocyted organism suffers a reduction of vitality, probably to such an extent that it quickly becomes incapable of reproduction, particularly under the artificial conditions of culture. This may be especially true of the meningococcus, which is very susceptible to unfavorable influences, and, if so, then successful culture must come from the more vigorous extracellular individuals. If there is a marked degree of phagocytic activity, these extracellular forms may be few or absent, giving poor

1. Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, THE JOURNAL A. M. A., Jan. 26, 1918, p. 227.
2. Medlar, E. M.: Epidemic Cerebrospinal Meningitis at Camp McClellan, THE JOURNAL A. M. A., Feb. 16, 1918, p. 458.
3. Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, Hospitalstidende, Dec. 6, 1917; abstr., THE JOURNAL A. M. A., Feb. 16, 1918, p. 498.
4. Elser, W. J.: A Contribution to the Study of Epidemic Cerebrospinal Meningitis, Jour. Med. Research, 1905-1906, N. S., 9, 89.
5. Horder, T. J.: Cerebrospinal Fever, London, 1915.
6. Frost, W. H.: Epidemic Cerebrospinal Meningitis, Pub. Health Rep., Jan. 26, 1912.

results in culture, while the intracellular, that is, phagocyted forms, may yet be sufficiently numerous to be demonstrable in smears. Furthermore, the antimeningococcic serum present in the blood used for culture may exert enough inhibitory action to prevent the development of some organisms. It is interesting to note that Elser reported a fatal termination in 80 per cent. of the cases in which the meningococci were obtained by culture, an observation which is consistent with the foregoing ideas, the insufficient production of antimeningococcic serum permitting the persistence of extracellular forms in the blood stream.

Whatever may be the sequence of events ordinarily taking place in the blood early in an attack of meningitis, the fact remains that in this instance the meningococci were easily found in the blood and were of great practical use for diagnosis. If the case was exceptional in this respect, it is interesting as an exception. It is not reported as an evidence of meningococcic bacteremia, for that has already been well established, but as an instance in which the bacteremia was utilized for making an early and rapid diagnosis. The thought is suggested that this method may have greater diagnostic possibilities than has been supposed. There are few diseases in which early diagnosis is so important, especially in very acute cases, and if the method is at all useful, it is applicable during the first hours or day, and in those cases that do not progress beyond the bacteremic stage. It is not thought that it would supersede lumbar puncture, but that it may have a place and value of its own, not only for the early information that it may give, but also on account of the ease and rapidity with which it may be carried out. The procedure requires only a minimum of apparatus and skill, and the taking of a few drops of blood from the lobe of the ear can often be done in cases in which the lack of a syringe, family opposition, or other circumstances render the more formidable operation of lumbar puncture difficult or impossible. In the examination of the films, the brilliantly stained diplococci are so readily seen that a large number of slides can be rapidly examined.

Fig. 1.—Plain blood agar plate: Lateral sectors show growth of pneumococcus and Streptococcus hemolyticus, lower sector B. influenzae, growth present but not visible in photograph.

To determine its diagnostic value and limitations, it will be necessary to ascertain certain facts, such as: 1. The frequency with which the meningococcus may be so found. 2. The number of slides necessary to examine before a negative result can be announced, that, is, the quantity of blood required. 3. Whether it is in the very severe or fulminating cases only that it may be found; if longer search may not show it in the milder cases also. 4. If not demonstrable practically in the milder cases, in what degree of severity it may be expected. If limited to only certain very severe cases, it would still be very valuable, as it is precisely in such cases that prompt diagnosis is most desired. 5. In those cases in which it may be encountered, how early and how late this may be possible.

I could not find any reports of work having been done along these lines, yet the subject seems worthy of investigation. It would require the systematic study of many films from many cases of meningitis of different degrees of severity, controlled by clinical and other bacteriologic evidence, and I regret that I have not the opportunities for doing it.

A SELECTIVE MEDIUM FOR B. INFLUENZAE

OLEATE-HEMOGLOBIN AGAR *

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The reports of various observers indicate that great difference of opinion exists concerning the etiologic significance of *B. influenzae* in the present epidemic of influenza. Some investigators have been able to isolate this organism from a large percentage of the cases that they have observed; others have succeeded in recovering it in very few instances. It is possible that technical difficulties in the isolation and growth of this microorganism may be in part responsible for the discordant results obtained in different laboratories. In any case, all those who have had experience in the isolation and cultivation of *B. influenzae* agree that in working with this organism, there are a considerable number of technical difficulties that have been only partly overcome by the methods so far devised.

In obtaining the organism from the sputum or throat cultures, or even from cultures made at necropsy, it is usually found in association with many other bacteria, most of which grow with greater luxuriance than does the influenza bacillus. It is evident, therefore, that if a medium could be devised that would prevent the growth of at least certain of these other organisms, such a medium would be of great assistance, especially if at the same time the growth of the influenza bacillus could be enhanced.

An attempt has been made to develop such a medium, and in the present report the results so far obtained are briefly described. In the development of this medium, use has been made of the observation that soaps of the unsaturated fatty acids are bactericidal for certain bacteria. In preliminary studies it has been found that the addition of sodium oleate to mediums prevents the growth of certain gram-positive organisms, principally pneumococcus and streptococcus, while the growth of *B. influenzae* is enhanced by

* From the Hospital of the Rockefeller Institute.

the presence of this substance. The oleate-hemoglobin medium, therefore, was devised and has proved very satisfactory for the isolation of this organism.

PREPARATION OF THE MEDIUM

Meat infusion agar (2 per cent.), which is neutral or slightly alkaline in reaction, is used as a base. To this is added a solution of sodium oleate sufficient to make a final concentration of 1:1,000. A serum-free suspension of red blood cells in broth is freshly prepared from sterile defibrinated rabbit's blood. One c.c. of this corpuscular suspension is added to each hundred c.c. of oleate agar, the addition of blood being made while the medium is still hot. Plates are then poured containing about 15 c.c. each of oleate-hemoglobin agar and used fresh to avoid drying out of the medium.

In the preparation of oleate-hemoglobin agar attention should be given to certain details:

1. *Agar.*—Two per cent. meat infusion agar having a reaction of from 0.3 to 0.5 acid to phenolphthalein should be used. The initial hydrogen ion concentration of the agar should represent a p_H of from 7.3 to 7.5. Hormone agar prepared according to the formula of Huntoon[1] yields excellent results, and has been used in the present study.

2. *Sodium Oleate.*—Two per cent. solution of sodium oleate (neutral) is made in distilled water, sterilized in the autoclave and kept as a stock solution. Five c.c. of this 2 per cent. solution of oleate is added to 95 c.c. of agar, giving a concentration of 1:1,000. In the present work Kahlbaum's sodium oleate has been used, but other preparations are serviceable.

3. *Suspension of Red Blood Corpuscles.*—Sterile defibrinated rabbit's or human blood may be used. Since serum is known to inhibit the action of oleate, and since hemoglobin is the constituent of blood essential for growth of *B. influenzae*, a serum-free suspension of the red corpuscles is used instead of whole blood. The red cells are removed from the defibrinated blood by centrifugation, the supernatant serum is pipetted off, and the corpuscles are made up to the original volume of blood by the addition of broth. One c.c. of this suspension of red cells is added to each hundred c.c. of oleate agar. The suspension of blood corpuscles should be added directly while the medium is hot, and just before use.

4. *Formula.*—This calls for:

Agar	94 c.c.
2 per cent. solution of sodium oleate	5 c.c.
Suspension of red blood cells	1 c.c.

Oleate-hemoglobin bouillon may be prepared in the same way by substituting broth in the place of agar in the foregoing formula.

1. Huntoon, F. M.: Jour. Infect. Dis., 1918, **22**, 169.

Fig. 2.—Oleate-hemoglobin agar plate: Corresponding sectors are planted with same organisms as in Figure 1 and show enhanced growth of B. influenzae in lower sector and complete inhibition of growth of pneumococcus and Streptococcus hemolyticus.

Cultures taken from the nasopharynx by the West tube or from the throat by direct swabbing should be streaked on the surface of the oleate-hemoglobin medium according to the technic described for the detection of meningococcus carriers.[2] Similar plates should also be made from the sputum. At necropsy, cultures should be taken from scrapings of the tracheal and bronchial mucosa, as well as from the lung exudate.

All culture plates should be incubated for forty-eight hours at 37 C.

COMMENT

The use of this medium has led to an increase in the percentage of positive findings of *B. influenzae* in actual cases of the disease and in convalescents. A report of these studies will be made in a subsequent communication.

Because of more luxuriant growth on oleate-hemoglobin medium, the colony of *B. influenzae* appears larger and less translucent than on ordinary blood agar, and in a later stage of development is not infrequently nucleated. On this medium, the gram-negative cocci of the *M. catarrhalis* group, staphylococci and occasionally diphtheroid bacilli grow, while pneumococci and streptococci of the hemolytic and *S. viridans* variety fail to develop.

The use in culture mediums of soaps of the unsaturated fatty acids, of which sodium oleate is a representative, suggests the application of this principle in bacteriologic studies of other organisms.

2. Standard Technic of Meningococcus Carrier Detection, Adopted by the Medical Departments of the United States Army and Navy, 1918.

Red Cross Work Under Difficulties.—Dr. W. S. Dodd of the American Red Cross, working at Mejdel, near Jerusalem, Palestine, reports to headquarters in Washington, D. C., on conditions in the hospital in which he was stationed. The hospital was made up of about twenty-five tents, with a dispensary tent, living quarters for the staff, etc. It was located on a sandy district with thistles and scant grass, and it was the custom of every one, including the staff, to go barefoot. The patients in the clinics numbered from sixty to 100 a day. Of 252 operations performed by Dr. Dodd in less than seven weeks, 222 were for eye troubles, of which trachoma cases formed the great majority. Dr. Dodd treated a number of patients with bombed hands, of which there were many in the earlier days. The cases he treated were mostly in children who picked up unexploded Turkish bombs which had been laying in the fields from the time of the British advance in the Gaza region. Many fingers and hands were lost from this cause. Lice, fleas and other vermin were everywhere, and maggots were frequently found in wounds, as the favorite dressing of the natives, a piece of raw meat, is a good breeding place. They were found in the ears, and in scalp and other wounds. Difficulty was experienced in making the patients conform to sanitary requirements, and penalties had to be imposed for violations.

NEPHROLITHIASIS PURPURA HEMORRHAGICA AND STREPTOCOCCUS INFECTION

REPORT OF A CASE WITHOUT FEBRILE REACTION *

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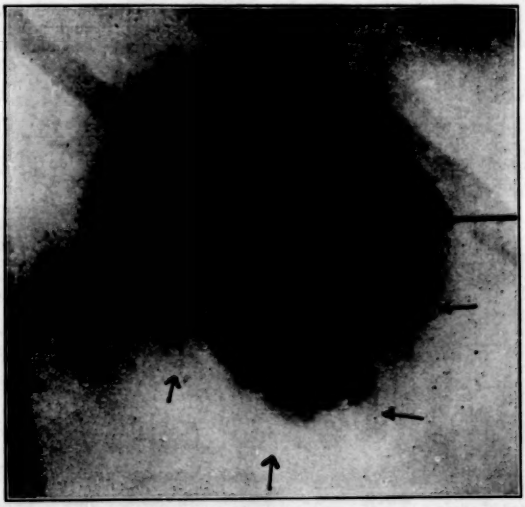
I record the observations in this case on account of their clinical interest rather than any complete scientific study of the problems concerned, as these are too subtle to be solved by clinical methods. The history is therefore abstracted in order to bring out the salient points.

REPORT OF CASE

A woman, aged 59, consulted Dr. George W. Endicott of Plainfield, N. J., on account of bloody urine. She complained of no other symptoms. She was referred to me for diagnosis. In the urine, considerable quantities of blood, numerous pus cells containing bacteria, but no casts were found. A specific gravity of 1.015 and the quantity of urea, estimated, 1.1 per cent., or 17.8 gm., in twenty-four hours, was considered practically normal for a woman of her age, passing more than 1,600 c.c. of urine a day. The urine was not offensive and no tubercle bacilli were present. Bacterial cultivation under aerobic conditions on the surface of agar was sterile, but a streptococcus was finally cultivated under these conditions after it had been isolated under anaerobic conditions. These streptococci were present in large numbers and in pure culture in urine obtained under aseptic precautions directly from the bladder. In the examination of the blood, 9,500 leukocytes were found.



Roentgenogram of right kidney showing calculus (indicated by large arrow) and lower margin of kidney (indicated by small arrows). The roentgenogram was taken by Dr. Lewis Cole, New York.

Although the patient had no febrile reaction, complained of no symptoms of pain or the like, and had no discomfort save the annoyance from increased frequency of micturition, it was evident that there was a well-marked streptococcus[1] infection at some point of the urinary tract—either the bladder, ureter or kidneys.

Treatment of the bladder by irrigation, first with argyrol and later with permanganate solutions which were increased in strength to the limit of tolerance, failed to produce any material change in the situation. An examination by roentgen ray was accordingly resorted to in order to determine the presence of a focus of infection higher up, and as a result of this the presence of an enormous calculus involving practically the entire right kidney was discovered, thereby establishing the diagnosis.

In the course of these examinations and treatment, the patient developed marked symptoms of purpura hemorrhagica dating from the time I first saw her, when she called my attention to vibices produced by the least injury. This condition increased. Vibices developed after scratching, and areas of purpura as large as the palm of the hand and even larger followed injuries that could not even be recalled. No cardiac lesions or arteriosclerosis were found on physical examination. The blood pressure was not above 150 mm. of mercury.

It was thought that the conditions in this case were extremely delicately balanced, and of clinical interest. A calculus had evidently developed insidiously and involved the entire kidney without giving rise to any symptoms or discomfort. Although the patient had complained of a "weak bladder" and had also been treated for cystitis in the course of which one of her physicians had instructed her in the use of the catheter, there is no point in the history of the case that would indicate the beginning of a streptococcus infection. Although married, the patient had never borne children. The relationship of the calcalus to the infectious process in the kidney is thus obscure.

In order to treat this case, a surgical operation was considered necessary to remove the calculus; and in order to safeguard the patient against possible extension of the streptococcus infection at the site of operation, streptococcus vaccines were administered. These were prepared from the autogenous strain as follows:

Streptococci taken from the surface of agar cultures were suspended in salt solution and killed by an hour's exposure at 55 C. Culture filtrates were prepared from the streptococcus growth in human blood serum broth after three weeks' incubation by infiltration through a Berkefeld filter and heating at 53 C. for an hour.

The effect of these two different vaccines was studied very closely in the treatment of this case. The culture filtrates were first used. A cubic centimeter was inoculated, and within twenty-four hours a marked local reaction with extensive purpura at the site of inoculation developed. The area of the reaction was approximately the size of the palm of the hand. A second inoculation in the other arm the next day was followed by a similar but less marked result. The third inoculation was made with the vaccine of bacterial cells from agar in the first arm inoculated. The reaction following this was slight and not accompanied with marked purpura. From that time on the two treatments with vaccines alternated with filtrates of the human blood serum broth culture and the vaccines of the streptococcus cell in increasing doses in each instance. As a result of this treatment it was possible to compare the local effect of the two forms of inoculation which seemed to differ so materially. The bacterial cells never gave rise to reactions of the type produced by the culture filtrates which so closely resembled the typical purpura

* Read before the American Society for the Advancement of Clinical Investigation, May 11, 1914.

1. The morphologic and cultural characters of this streptococcus were not unusual in any particular. Capsules were not demonstrable. It was very slightly hemolytic in blood agar, developing greenish colonies. Five c.c. inoculated in rabbits failed to kill the animals, but streptococci from fatal human infections often fail to kill animals.

hemorrhagica that developed spontaneously as the result of injury. Furthermore, during this treatment with these vaccines the occurrence of spontaneous purpura took place with less frequency until finally it disappeared after about three weeks' treatment, and the patient has been free from it ever since.

Following this treatment the patient was referred to Dr. Endicott for surgical treatment. He successfully removed the right kidney, and the operation was followed by a complete recovery.

COMMENT

The case is thus of interest on account of the large size of the stone, its insidious development, and the presence of a streptococcus infection associated with it, doubtless for an indeterminate number of years, without giving rise to febrile reaction or any significant symptom complex save that of purpura hemorrhagica, which might reasonably be attributed to the liberation of toxic substances under conditions of disturbed balance in the protective mechanism of the body tissues. With immunization, the efficiency of the protective mechanism was gradually but completely restored. The culture filtrates used as vaccine proved more active than the vaccines prepared from the bacterial cells.

It is also of interest to note the difficulty of securing cultures by the usual methods of bacterial examination and the necessity of resorting to anaerobic cultivation for this purpose.

The significance of a single clinical observation which admits of no precise interpretation such as is possible in experimental study is extremely limited, but it is certainly suggestive, and it may be possible to determine more accurately the conditions underlying the development of these reactions of purpura when similar conditions can be induced in animals. There is, however, always a break in the analogy between the result of experiments on animals and the phenomena of disease as it occurs in man; hence the importance of this record — an experiment conducted on man.

CITRATED BLOOD IN TREATMENT OF THE PNEUMONIA FOLLOWING INFLUENZA *

RESULTS OF THE USE OF BLOOD FROM CONVALESCENT INFLUENZA PATIENTS

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The early days of the epidemic with its fatal and clinically somewhat atypical pneumonia are far from pleasant memories. Any measure, therefore, that gave us a better chance to combat this infection was most opportune. McGuire and Redden[1] treated thirty-seven pneumonia patients with thirty recoveries, six still under treatment and one death, by using the blood serum intravenously, taken from influenza patients that had recovered. They used from 300 to 700 c.c., as was indicated. This meant, of course, that large amounts of blood had to be taken from the donors, up to 800 c.c. of blood being withdrawn from one individual. They noticed that the serum appeared to vary in the amount of immune substance that it was supposed to contain. In fact, ten out of seventy serums clinically failed to demonstrate any evidence of this. Brown and Sweet[2] referred to the use of citrated blood in two cases of influenzal pneumonia with recovery in each case. They gave 90 and 120 c.c., respectively.

The epidemic from the point of view of the medical service at the Mercy Hospital, Pittsburgh, began about Oct. 10, 1918, when we received almost a score of soldiers from the University of Pittsburgh as our first instalment. About three days later the pneumonia commenced, and at the first of the epidemic, as has been observed elsewhere, it was particularly severe. We employed arsphenamin in two pneumonia cases, but there was no evidence that it had any special effect in the clinical course of the disease. One of these patients recovered, with, we feel sure, no thanks to the arsphenamin; the other died about seventy-two hours after the administration of the arsphenamin from the pneumonia. October 17, we began treating our patients with citrated blood taken from persons who had recovered from an attack of influenza.

We chose the citrated blood method as it appeared to us to be more convenient, and further, that possibly one would not need to remove so much blood as would be necessary in order to collect serum in considerable quantities. One must admit that 800 c.c. of blood taken from one just recovering from an acute illness seems to be a considerable amount, but apparently it was followed by no ill effects.

Our technic is simple. It is necessary to have two 50 c.c. Lüer syringes, two 250 c.c. Ehrlenmeyer flasks, one short rubber tube with a fairly large needle attached for taking the blood, and a rubber tubing apparatus which we have used here for giving arsphenamin. This consists of two small rubber tubes, a long and a short one, joined by a triple cock, by which the flow of a solution can be introduced one way or the other. A metal attachment is fitted to the Lüer syringe, and the needle is attached to the short tube. The long rubber tube is placed in the Ehrlenmeyer flask, containing physiologic sodium chlorid (0.9 per cent.) solution, and a small quantity (20 c.c.) is drawn into the syringe. The sodium chlorid solution is first given to make sure that the needle is properly placed in the vein. The rubber tube is then transferred to the flask containing the blood solution (40 c.c. of 2 per cent. sodium citrate in physiologic sodium chlorid solution to from 75 to 100 c.c. of blood), which is slowly injected into the vein.

It is essential to carry out a Wassermann test on each donor. We had no positive reactions among our donors, who were practically all students from the Army Training Corps. Toward the end of the epidemic, when most of the soldiers had gone and donors had become very scarce, some civilian ward cases were tested for use. Strangely enough, half showed positive Wassermann reactions, a point probably well to remember if work of this type is to be applied to civil life.

The matching of blood, iso-agglutination reaction, was studied in the first two cases; but after that, simply on account of the fact that time and assistants were limited, it was not continued. We observed no evidence of any ill effect from our neglect of this procedure. There was no hematuria in the patients

* From the Mercy Hospital.

1. McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum: Preliminary Report, THE JOURNAL A. M. A., Oct. 19, 1918, p. 1311.

2. Brown, W. L., and Sweet, B. L.: Treatment of Influenzal Pneumonia by Citrated Transfusions, THE JOURNAL A. M. A., Nov. 9, 1918, p. 1602.

injected. We thought that the amount, never more than 100 c.c. at one time, was probably not conducive to produce ill results. Certainly, if possible, it is better to carry out this agglutination work.

We injected as a rule about 75 c.c. of blood. Four injections were the most we gave to any one patient. We were unable in the first two weeks to inject more than once in twenty-four hours, for no other reason than the lack of time. We think that in all probability a few cases were lost on this account. Latterly, the pneumonia cases seemed to be of a somewhat milder type and reacted more readily. In all we have taken about 100 specimens of blood from donors and have given ninety-three injections to pneumonia patients.

The number of patients treated in the course of a little more than three weeks was fifty-four. They represented entirely the severe influenzal infections—all had pneumonia. The milder types of influenza were very carefully conserved to be held as donors, as we made it a rule not to use the blood from any patient in whom the disease had not come to normal of its own accord. Thirty-four patients recovered and twenty died. It would be well, however, to say that in this twenty there were seven patients that were in the very termination of the pneumonia, showing unmistakable evidence of edema of the lungs. Cases as late as these can in no way be used as an index of the value of any type of treatment. Death occurred in all of the seven within twelve hours after the injection. The accompanying table gives really a more accurate statement of our results. The mortality was 27 per cent.

From the table one can readily see that the earlier the case was treated the better was the chance for recovery. In view of the fact also that the blood given

RESULTS OF TREATMENT BY THE CITRATED BLOOD METHOD

Day of Pneumonia	Recovered		Died
First	18		2
Second	9		6
Third	4	(1 empyema)	1
Fourth	3		4
	34		13

probably had an effect only on the influenzal side of the infection and not against the prevalent secondary invader, the pneumococcus, it is only to be expected that the late cases would show poorer results. It is also to be kept in mind, as Christian[3] has shown, that the presence of pneumonia is a much more difficult problem to solve than the same condition in our ordinary pneumococcus infection of the lung. Undoubtedly, in many of the prolonged influenzal cases with only râles at the bases, particularly at the apexes of the lower lobes, bronchopneumonia was present. When we use the term pneumonia we refer, however, only to those that demonstrated signs of consolidation in the usual sense. We know certainly that some of the cases in the table were of longer duration than is indicated, although by physical signs that was the apparent time.

The reaction of the patient effected by the blood transfusion was really about the same as that seen in the use of antipneumococcic serum in lobar pneumonia. The more striking results were observed in those cases in which treatment had been given in the early stages of the pneumonia. At times one injection (from 75 to 100 c.c.) produced a crisis. In most of these cases it took from twenty-four to thirty-six hours to reach the crisis. Lysis was encountered more frequently in those in whom the pneumonic process was of longer duration. In these also, two or more injections were frequently necessary. At times, after the second injection, an almost typical crisis was observed. In a certain percentage of the patients that recovered, almost one quarter of them, a mild, febrile reaction (from 99 to 100 F.) from one to three days was noted after the case had come to normal. Absorption from focal areas in the lung during their resolution is the most likely explanation of this temperature elevation. We noticed a fall in temperature, following almost every injection given. In fact, we had only one case in which there was no change in this regard. We considered that in all probability we were dealing with a pure pneumococcic infection, secondary to the influenza, and hence no impression was made on the condition. A case similar to this one that had reacted in a like manner after two blood transfusions dropped by lysis after 50 c.c. of antipneumococcic serum were used.

A certain percentage of the transfusions, usually the first, produced a chill with a temporary rise in temperature and a subsequent fall. In seven patients the chills were sharp, lasting from ten to fifteen minutes. About an equal number (six) felt a little chilly, but had not a definite chill. There was no relation, whatever, between the chills and the mortality. Serum or blood subcutaneously (from 0.5 to 1 c.c.) would probably lessen this rather disagreeable after-effect, in the way suggested by Cole in the use of the antipneumococcic serum.

There is one other point to be watched. In those patients who were rather dyspneic or cyanotic or who had respiratory discomfort, as from pleural pain, the injection had to be given very slowly; otherwise these symptoms were temporarily increased.

The temperature reaction, however, should not be taken as the whole guide. As a rule, it corresponded to the condition of the patient. As the pulse rate in practically all of our pneumonic cases was of the relatively slow type (from 80 to 100), but little information was to be received from this source as to the change in the patient. The general appearance and comfort of the patient was noticeably improved in those cases reacting favorably. From the physical signs, we have seen a dry, consolidated area, in the course of twelve hours after an injection, present all the signs of a lung in resolution.

During the height of the epidemic when we had more than 100 soldiers in the wards at one time, the problem of obtaining donors was a very simple one. There were always cases in the convalescent stages. Toward the end of the epidemic, however, the donor problem became somewhat more difficult, as our patients who recovered were soon restored to an Army convalescent home. It is very much easier to carry out this form of treatment among soldiers, particularly when one is dealing with considerable numbers, than among civilians even in a hospital. At first we believed that there was considerable difference in the donor's blood in regard to the supposed immune body content, as had been suggested by McGuire and Redden.[1] That they would vary in this property is only logical, but we are rather doubtful at the present

3. Christian, Henry A.: Incorrectness of the Diagnosis of Death from Pneumonia, THE JOURNAL A. M. A., Nov. 9, 1918, p. 1562.

time that this is really the explanation of the poor reactions in certain cases. In our opinion it is more likely that the secondary invading organism had begun to develop its lesion in the lung and that a new and subsequently fatal factor was added. In this district it is almost entirely the pneumococcus. From the data at hand, we cannot state that there is a noteworthy difference among donors, in regard to the clinical results produced by the injection of their blood. Those having a leukopenia or a leukocytosis and those who pursued a mild or severe clinical course seemed about the same.

The leukocyte count followed very closely a general rule. A leukopenia of from 3,000 to 5,000 was present at the onset of the influenza in a vast majority of cases. With the onset of pneumonia a very moderate leukocytosis, one of from 9,000 to 12,000, occurred in the majority. At times it was higher. We had, however, but eight counts between 20,000 and 30,000 in the 150 counts estimated. This finding is in marked contrast to that observed in the lobar pneumonia.

In some, particularly the very severe pneumonia cases, the leukopenia persisted throughout the course. A drop in leukocytes was a serious prognostic sign during the course of the pneumonia. We have very slight evidence of an influence on the leukocyte count by the blood transfusion. In two or three cases the increase was well marked, from 5,000 to 10,000, but in the remainder there was very little change, whether we began with a leukopenia or a moderate leukocytosis.

SUMMARY

The use of citrated blood from convalescent influenzal patients administered to patients when pneumonia followed the influenza appeared to have a decided beneficial effect, particularly if given early. Beyond the third day of the pneumonia it was of little value.

That the citrated blood establishes an immunity to *B. influenzae* is inferred but not proved. Many additional factors may play an important rôle. Extensive work along these other lines was conducted by the University of Pittsburgh during the recent epidemic, a report of which will appear later.

Suggestion by the Patient.—We are often misled by our patient's interpretations of his own case. In other words, we are human and subject to the power of suggestion. Often we are informed that they are suffering from heart disease, kidney or liver disease, or appendicitis, constipation or diarrhea, and we listen to their story and become hypnotized ourselves and follow along the line of the patient's suggestions. They are anxious to tell somebody their symptoms and if we are good listeners they are willing to pay us for our trouble and time for listening.—President's Address, Minnesota State Medical Society.

Clinical Notes, Suggestions, and New Instruments

ONE MAN WITH FIVE TESTES: REPORT OF CASE

GEORGE H. DAY, M.D. (LOUISVILLE)
Major, M. C., U. S. Army; Camp Venereal Officer,
CAMP PIKE, LITTLE ROCK, ARK.

This case was referred to the urologic department, July 1, 1918, for confirmation by Major H. C. Loos, chief of the surgical service at Camp Bowie.

The man in question was discovered by Major Loos at a local garage, where he was employed as a mechanic. After questioning the man and hearing his history, Major Loos was interested enough to have him report to the base hospital for examination. The case has since been presented to the Clinical Society of the Base Hospital, Camp Bowie, for examination.

G. E. M., aged 19, of San Benito, Texas, presented a negative family and personal history other than that his father had died of typhoid ten years before.

Scrota with five testes: white arrow points to line of demarcation between scrota; black arrow, rudimentary scrotum; 1, 2, 3, 4, 5, testes.

He had had gonorrhea twice, the first time at 17 years, and again six months before we saw him. The first time he knew he was other than normal was two years before, when on attempting to enlist in the service, he was rejected at Brownsville, Texas, by the recruiting officer of the Twenty-Sixth Infantry. At that time he was told that he was ineligible on account of severe varicocele.

He attempted to enlist again at Oklahoma City one year later with the same result.

Three months before he again attempted enlistment at Fort Worth, Texas, and was again rejected with a diagnosis of varicocele and hydrocele.

The man was well nourished, and aside from being overdeveloped, with the contour of the arms rather feminine and the pelvis and hips somewhat large, he appeared to be normal.

It was immediately noticed that the scrotum was much larger than usual. The penis was about twice the size found in boys of this age.

On retracting the scrotum it was noticed immediately that the young man had another normal scrotum and perhaps a third, which was rudimentary in origin, to the right of the normal one. On further examination four normal testes were discovered, two being in each of the two scrota and another atrophied one being in the redundant tissue posterior to the second pair. The third or rudimentary scrotum in the groin (right) contained no trace of the sixth, and may possibly be intra-abdominal. The line of demarcation in the tissue of the scrotum was most marked and showed forcibly the fact of the scrota.

When he assumed the knee-chest position, the posterior view strikingly brought out the line of demarcation between the scrota. Aside from an overabundant sexual desire he said he had never noticed anything abnormal in his sexual life.

We have not had the opportunity of looking up the literature on the subject and are presenting it simply as an anatomic freak. Certainly the man is possessed with four normal

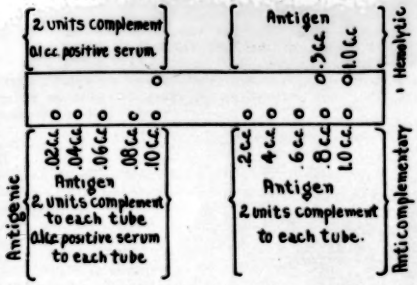
testes and cords, a fifth atrophied testicle and perhaps a sixth which is undescended.

It would be interesting to see a section to note where the attachment of the second set joins the vas of the first, and it is not at all improbable that he has also multiple seminal vesicles, although only one prostate is palpable.

A SHORT METHOD OF MAKING NOGUCHI ACETONE-INSOLUBLE ANTIGEN

G. A. Magnusson, M.D., Seattle

In order to gain the most information from the Wassermann test, more than one antigen should be used in the "set up." One of the antigens so used should undoubtedly be the Noguchi acetone-insoluble, as it will give positive reactions with a higher percentage of syphilitic serums than the alcoholic extracts, while it is less likely to give false positive reactions than the more sensitive cholesterinized extracts. But its preparation requires so much time that this becomes quite a factor in a laboratory where considerable quantities are used. With a view of hastening the process of extraction and evaporation we tried this at higher temperatures and find that boiling temperature in no way interferes. In this way we can prepare and titrate an antigen all in one day.



"Set up" used in titration.

PROCEDURE

To one part of finely minced beef heart, nine parts of commercial ethyl alcohol are added. (We have recently tried the extraction with denatured alcohol and this seems to do as well. As alcohol is denatured according to varying formulas, some may not be usable.)

This is boiled in a water bath for from ten to fifteen minutes, and filtered while hot.

The filtrate is evaporated over a boiling water bath until the alcohol and water are removed.

The residue is extracted with a small amount of ether.

The ethereal extract is poured into a centrifuge tube and centrifuged until the supernatant liquid is perfectly clear. This is added to ten volumes of chemically pure acetone.

The precipitate is allowed to settle. The greater part of the acetone is decanted, and the rest is poured into a clean graduated centrifuge tube and centrifuged for five minutes at moderate speed, the acetone poured off, and drained thoroughly.

To the precipitate, ten volumes of chemically pure methyl alcohol are added, and the mixture is stirred with a glass rod until as much as will dissolve has gone into solution and then centrifuged until the supernatant liquid is perfectly clear.

This is poured off and kept in a clean, well stoppered bottle.

TITRATION OF ANTIGEN

An emulsion is made with one part of this stock alcoholic solution and nine parts of physiologic sodium chlorid solution.

Titration is performed for antigenic, anticomplementary and hemolytic properties.

The accompanying chart illustrates the "set up" used in titration.

To each tube, physiologic sodium chlorid solution is added to bring the volume to 1.5 c.c.

Incubation is performed for one hour.

To each tube 0.5 c.c. of sensitized sheep cell suspension (5 per cent. sheep blood cells and 2 units of amboceptor) is added.

Incubation is performed for one hour.

Most of the antigen preparations we have made in this way have had an antigenic unit of 0.02 c.c. of the 1:10 emulsion, while a full cubic centimeter was neither hemolytic nor anticomplementary.

TREATMENT OF CHRONIC GONORRHEAL SKENITIS WITH THE ELECTRIC CAUTERY *

Chester B. Moore, B.S., M.D., San Francisco

A not uncommon pelvic focus for the lodgment of the gonococcus is the gland of Skene. In this minute epithelial pocket such an infection may persist indefinitely in spite of local applications. Even if the ducts are exposed and medicinal injections directed into them with a hypodermic needle, the infection may continue without interruption. Often it is possible to express a few or several drops of pus week after week, and month after month, along with such oft-repeated treatment. Furthermore, this minute gland may remain in a chronic state of suppuration without a local symptom, the focus of infection being discovered only in the course of a general pelvic examination. Unless one makes an attempt to express the contents of these ducts, this focus may be entirely overlooked. In this type of gonorrheal infection of Skene's gland nothing less than the complete destruction of the gland will terminate the disease in this locality. This destruction may be easily attained by the use of the thermocautery.

The operation is quite easy and simple, provided one can get a good exposure. For this purpose I take a Kelly endoscope that has been cut off at the proper length so that it will not extend into the bladder, close it with the olive tip, and cut out a small window as shown. I have found that a No. 8 endoscope serves the purpose very well. This makes an instrument, a skenoscope, with a handle that is directed upward out of the way; the entrance is expanded to hold back and protect the labia; the tubal portion protects the urethra except at the point of attack, the gland, the ducts of which protrude into the window cut for the purpose. Under local anesthesia, it is possible to pass a small wire thermocautery

Front, side and top views of instrument devised for use in the treatment of chronic gonorrheal skenitis with the electric cautery.

into the gland without fear of cauterizing any other place than that desired. In order to obtain good light, I have had a small post so placed on the handle that it will carry an E. S. I. light directed toward the aperture. However, any means for obtaining good light will do.

To cauterize the gland, as much discharge as possible is expressed from the ducts. The urethral entrance is cocainized with a 10 per cent. solution for about ten minutes. The instrument is passed, handle upward, until a good exposure is obtained. The entrance of the ducts is sought with a large size hypodermic needle, from which the point has been filed, or with the wire contained in the tubal portion of the instrument. The needle or wire is passed along the duct to the

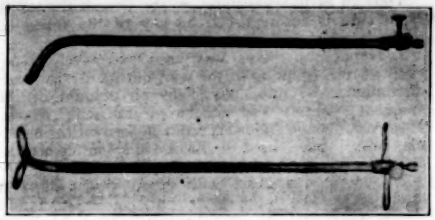
* From the Division of Obstetrics and Gynecology, Leland Stanford Junior University School of Medicine.

base of the gland. They will act as a guide to direct the passage of a small, pointed, electric thermocautery until as much tissue as desired has been destroyed. Up to the present, no discomfort or ill effects have followed this procedure. If the first operation has for any reason been unsuccessful, it may be repeated. Also, it is possible to cauterize the glands without passing a wire for a guide.

A NEW PROSTATIC TRACTOR*

A. J. CROWELL, M.D., CHARLOTTE, N. C.

While performing a seminal vesiculectomy some time ago, it occurred to me that the operation could be greatly facilitated by the use of a tractor inserted into the bladder, through



Prostatic Tractor.

the urethra, which has the same curve as that of a sound. For this purpose I therefore designed the one shown in the accompanying illustration.

It consists of two fenestrated blades attached to shafts, the inner one of which has a cable in the curved portion which allows one of the blades to revolve around the other. There are two handles at the outer end of the shaft which regulate the rotation of the blades after insertion into the bladder through the urethra. When inserted, the handles are rotated from each other to open the blades within the bladder. The gland is thus pulled into the operative field and at the same time the handle of the instrument is out of the way of the operator.

A glance will show the superior advantage of the curve in any operation on the perineum when a guide is needed to locate the urethra, prostate, seminal vesicles or bladder. We use it as a routine in perineal prostatectomies and find that by its use it is much easier to expose the prostate, and the danger of getting into the rectum is greatly diminished.

After the tractor is inserted and the blades opened, slight pressure on the handle by an assistant will pull the gland well into the operative field. It is a better guide than the sound ordinarily used for this purpose. It gives not only a urethral guide that is fixed but also a definite location of the prostate gland and membranous urethra, which are firmly held in one position while the gland is exposed.

* From the Crowell Urological Clinic.

Elimination of Inhaled Dust.—In a paper read before the Institute of Mining Engineers on dust inhalation and the health of miners, J. S. Haldane, F. R. S., among other things said that investigations had shown that coal and shale dust were rapidly eliminated from the air passages by special dust collecting cells which phagocyted the dust particles and then carried them away. This, however, does not occur to the same extent with quartz dust, and whereas miners in coal and shale suffer practically no injury from the dust itself, quartz mining results in serious respiratory difficulties, both on account of the sharpness of the dust particles and because of their defective elimination in the manner described. The widespread introduction into coal mines of stone dusting as a means of preventing coal dust explosions has directed attention to the possibility of injury from this cause.

Military Medicine and Surgery

THE TREATMENT OF HYSTERIA

SUCCESSFUL RESULTS OF A RAPID REEDUCATION METHOD

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The world war has provoked such an immense number of the various types of hysterical disorders that the conception of hysteria can now be studied more easily from every aspect. It has taught us to look on what we ordinarily designate "hysteria" as merely the outward sign, the symptom, of the fundamental causative factor—the hysterical psychic background. So, when we speak of the treatment and cure of these patients, we wrongly say we have cured the hysteria; we have cured only the hysterical symptom. What most physicians in their ardor have left untouched and untreated is the hysterical psyche which gave rise to the symptom which has incapacitated the patient. This is important to remember when the question arises of returning a hysterical subject to the same environment that originally caused the hysterical symptom.

The war has also shown us that hysteria seldom, if ever, occurs during violent emotion, but rather during the contemplative stage succeeding the emotion; also that there is no essential difference, except perhaps in the number and in the intensity of the emotion produced, between the hysteria of warfare and that of civilian life.

Fig. 1.—Patient before and after treatment for hysterical blepharospasm.

Babinski has so far offered the clearest and most concise definition of hysteria: "Hysteria is a pathologic state manifested by disorders which it is possible to reproduce exactly by suggestion in certain subjects and can be made to disappear by the influence of persuasion alone." Instead of "hysteria," which is obviously a misnomer, he has substituted "pithiatism," which means the possibility of being cured by the influence of persuasion.

There have been published volumes on the classification of hysterical disabilities, but very little on their treatment. In Babinski's book on hysteria, for exam-

ple, eight pages are devoted to the treatment and 252 to other desiderata on the subject.

It is with the idea, therefore, of presenting to the American physician, especially to him who is going into active service, the results of my studies on this subject in British and American hospitals in England during the past year, and to give the outstanding features I have learned for the successful and rapid cure of this class of case, which accounts for an important percentage of the discharges from the fighting armies, that this paper is published.

This paper is based on 573 cases of hysteria treated by me in British and American hospitals; in the former are included those hysterias largely due to "shell shock," in the latter those found in ordinary civilian life. Of these, 550 patients, or 95 per cent., were cured of their disabling symptoms completely.

I shall not deal with the causes or analysis of the different types of hysteria, nor consider the subject of relapses, of which I am now collecting full data. The symptoms included in the 573 cases are given in the accompanying tabulation.

Occasionally more than one hysterical symptom would be found in the same patient. This has swelled the actual number of symptoms treated to 605.

Only twelve of the 550 patients had external wounds complicating the picture. In only two patients were there any concomitant organic nerve changes noted.

In more than 90 per cent. of the cases the cure was accomplished within the first twenty-four hours. The extremes varied from five seconds in some of the aphonics to more than seventy-two hours in some of the dysbasias of long standing.

Fig. 2.—Functional flaccid wrist drop in a case of hysterical monoplegia of ten months' duration cured in ten minutes.

The most important part of the treatment is the confidence of the physician in the correctness of his diagnosis and in his ability to produce a cure. This air of assurance spells immediate success. No one can convince others who himself is unconvinced.

SYMPTOMS INCLUDED IN FIVE HUNDRED AND SEVENTY-THREE CASES

	Cases		Cases
Mutism	84	Tics	8
Deafness	30	Astasia abasia	4
Aphonia	175	Stasobasophobia	20
Stammering	118	Dancing gait	6
Blepharospasm	2	Hemiplegias	9
Blindness	6	Tremors	40
Monoplegias	46	Photophobia	2
Paraplegias	54	Double platysma spasm	1

One can divide the various kinds of treatment of hysteria into two groups, the slow and the rapid. Among the former are:

1. The purely reeducative methods, for example, breathing exercises and singing in the stammering cases, and the use of mechanical machines, massage, etc., in the paralyses. I have watched stammerers thus treated for as long as three months and paralytics given electrical treatments for six months by "kindly" nurses and sympathetic teachers with very gradual improvement, if any, and have repeatedly cured these patients of their symptoms in one sitting of from one-half to one hour.

2. Psychotherapy, consisting of psychanalysis. This is impracticable for the hysterias of warfare at this time. It often accomplishes much in the psychoneuroses, in which the emotive processes are in the ascendency, but there are not enough psychoanalysists to deal with the cases of one large hospital for this form of disease. The method is too slow to be of practical use when dealing with such large numbers of patients. One must have recourse to rapid methods by which the patient is quickly cured of his symptoms after a short preliminary psychologic survey. After his cure, the patient is more willing to discuss causes and he often tells things surprisingly pertinent when the confidence in his physician is supreme.

Thus an early accessibility to the patient through a rapid cure is accomplished by any of the following methods, which include:

1. Hypnotism. This was used extensively, especially at the beginning of the war, but its use has been discontinued by most physicians on account of the frequent relapses and otherwise indefinite results. However, hypnotism is very valuable in treating insomnia, and I have used it successfully in combating terrifying dreams and hysterical convulsions.

2. General anesthesia with ether, combined with strong suggestion in the excitement stage. This is still frequently used, but I believe that on account of the discomfort to the patient, simpler methods should be employed first. The method finds its most successful use in the intractable cases of hysterical deafness.

3. The continuous bath. This is reputed to have been quite successful in the treatment of certain algias and motor disturbances of hysterical origin.

4. Suggestion. The best of all treatments in my hands has been strong suggestion, reinforced by some mechanical agent which will assist in relieving at least some of the disturbed functions. This is easily administered with the aid of faradism or galvanism, and the results are quick and complete. Thus Yealland has aptly described the three principles he employs. (A) Suggestion, in which the patient is made to believe he is curable and from this springs the belief that he will be cured. This is briefly done and is followed by (B) Reeducation, which is continued without pause until the disordered functions are brought back to normal. (C) Discipline, in the form of demanding a military atmosphere and regular duties. This breaks down the unconscious resistance of the patient to the idea of recovery. The last is the real preventive of fixed ideas and is a most constructive policy.

SPECIAL TREATMENT FOR THE VARIOUS DISORDERS

Hysterical Mutism.—All of the eighty-four patients treated were cured within an hour, some requiring only a few minutes. In the uncomplicated cases of mutism, strong suggestion combined with faradic stimulation of the sides of the neck in increasing strength, the patient at the same time being shown how to produce the vocal sounds "e," "ah," "a," etc., usually suffices

to produce articulation quickly. The patient then learns how to adjust his tongue to utter a squeak, which, as a rule, is rapidly followed by letters, especially the labials and dentals, then numbers, the months of the year, and finally sentences. If a hypesthesia or anesthesia over the trachea is found before treatment, it is used as a lever for further suggestion because the disturbed sensation can be easily removed by the faradic brush.

CASE 1.—J. J. L., rifleman, who had hysterical mutism ten months, was cured in one minute by suggestion, combined with faradism to the sides of the neck. During an air raid in July, 1917, an aerial torpedo burst 50 yards away from the patient. He was rendered unconscious and cannot remember how long he remained so. He had been mute since then and could not even protrude his tongue. He was treated in several hospitals without success.

These patients with mutism (and this is true for all hysterical symptoms) who have passed from hospital to hospital, receiving suggestion after suggestion, who have seen many physicians or who have had the most varied and unsuccessful treatment, are the most difficult to cure on account of the fixation of the idea of incurability. The physician has to have an ever-ready plausible answer for myriads of questions, and especially to statements that the sufferer has had all these treatments before.

Hysterical Deafness and Deafmutism.—If deafness is associated with mutism, it is well to treat the deafness first. The mutism often disappears soon after the return of hearing. Sixteen of the thirty cases of deafness were accompanied by mutism. In only one was there failure to cure, and this was undoubtedly due to interruption of the treatment, and its continuation by a third party.

Fig. 3.—Patient with rigid hysterical paraplegia of nine months' duration cured in forty minutes.

It is well at first to write down the orders for the patient, so that he will understand and pay attention to them. The deaf hysteric can usually hear very high-pitched and shrill sounds which he is unable to interpret.

Inserting a stethoscope into the ears of the patient, different tuning forks of various vibration lengths are quickly and successively held at the bell of the stethoscope and the patient told to nod when he hears something and to reproduce the sound heard. When he can finally do this for low notes, the voice of the operator is then substituted for the tuning forks and, beginning with a loud voice, the distance between the patient and operator is gradually increased. Then the loudness and pitch of the voices are diminished. Finally the stethoscope is removed and one ear is blocked. The patient is told to repeat quickly the things he hears while the operator rapidly changes his voice from loud to soft and then to a whisper, while he gradually increases the distance from the patient until the latter can hear the whispered voice from 10 to 20 feet away. If one tests the bone conduction by applying a tuning fork over the mastoid region, the patient receives some intimation that he is not completely deaf. This is used as an auxiliary suggestion, however, and is followed by the treatment outlined above.

CASE 2.—Private H. H., aged 26, who had hysterical deafness four months, was cured in fifteen minutes. He was in a dugout when a high explosive shell burst outside. He was knocked unconscious and remained so until he awoke the next day in a casualty clearing station and found that he was deaf and dumb. Several days later he regained his speech but not his hearing. He had considerable temporal headache, but there were no objective signs of injury to the auditory apparatus. He had been treated in three hospitals in France and England without improvement. Examination revealed bone conduction to high pitched notes only. No air conduction could be elicited. The treatment was carried out as outlined above, and the patient could hear the whispered voice at 15 feet in fifteen minutes.

Hysterical Aphonia.—One hundred and seventy-five aphonics were treated with 98 per cent. of cures. In many of these cases the symptoms followed gassing, with its subsequent laryngitis and aphonia. After the inflammation has subsided, the aphonia continues, sometimes indefinitely. Often a shock or sudden emotion, such as a terrifying dream, falling out of bed, or even a severe reprimand may suffice to bring about a "cure."

The vocal cords of an aphonic should always be carefully examined prior to treatment. If these look normal other than failing to approximate equally on attempted phonation, it is well to tell the patient that he is about to get his voice back immediately. Then, very often, simply gargling with a 10 per cent. salt solution is sufficient for the patient to be able to make an articulate "ah." He is then quickly re-educated in mutism. Sometimes tickling the soft palate with the tongue held protruded will produce the same result, but these failing, faradic stimulation of the sides of the neck, as in mutism, practically always cures in a few minutes.

CASE 3.—Private B., aged 19, who had hysterical aphonia ten months, was cured in three minutes. The patient lost his voice in May, 1917, following gassing and a cold. He had not spoken above a whisper since. He had not been worse or better since the onset. He suffered from easy fatigue and frontal headaches, and trembled in air raids. He feared dark places and heights. His concentration was poor. He always possessed a nervous temperament and had two or three bad frights in childhood. He was a total abstainer and suffered from depression of spirits. This patient was treated with the roller faradic current.

Hysterical Stammering.—In some cases, as in mutism, the patient is cured of his original hysterical symptom either spontaneously or by incomplete treatment, and then lapses into another and worse condition —stammering. In fact, the usual sequence of events is unconsciousness, mutism, aphonia and stammering, although any of these may occur without the others having been present first.

One hundred and eighteen cases of stammering were treated. While most of these patients (90 per cent.) were cured at the first or at the most at the second

sitting, some were not cured till the third or fourth—especially those with marked tremors or fear reaction, or those who were easily startled or had other signs of emotivity. About 50 per cent. of these cases stammer a little for some months afterward when they become embarrassed or excited; in other words, so long as there is any emotivity left. In letters I am receiving from patients treated, they tell me this symptom gradually wears off and that they are regaining their self-possession.

CASE 4.—Private B., aged 23, who had hysterical stammering fourteen months, was cured in ten minutes. Jan. 15, 1917, the patient was blown up. He was unconscious for two or three days, followed by mutism for several days, which was relieved spontaneously and was succeeded by marked stammering, which persisted in spite of many attempts at cure by various methods. The family and personal histories were negative. He was cured by suggestion and faradism.

Hysterical Blepharospasm.—Both of the patients with blepharospasm were cured within a minute each by the application of a faradic current over the supra-orbital notch first on one side and then on the other, immediately after strong suggestion. The blepharospasm was the result of gassing and photophobia. In one case (Fig. 1) the blepharospasm had been present seven months and was cured in ten seconds.

Hysterical Blindness.—Of hysterical blindness, seven cases were treated and cured at one séance each. In these cases the intelligence and cooperation of the patient are essential for the rapid cure.

CASE 5.—Sergeant L., aged 28, who had hysterical blindness four months, was cured in two hours. A letter to his nurse explains the treatment tersely and lucidly.

Dec. 3, 1917, I was blown up by a German 11-inch shell while bringing ammunition out of the line, and within a few days I completely lost my sight. I was treated at the —— Hospital for two months. I had electric treatments for about ten days. I was forbidden to smoke and had both eyes bandaged for some days. No good results were obtained, and I was sent to —— Hospital, Feb. 15, 1918. Here I was examined by three or four doctors and remained there for three weeks. My sight was no better and in consequence I was sent to —— Hospital. I was again treated by four or five doctors with the electric apparatus for about a month, but no improvement. I had lost confidence and was beginning to lose hope of ever being able to see again. Then Captain W. visited me and after explaining what was the matter with me and the reason I could not see, he treated me with the electric power for about an hour, leaving me just before 2 o'clock; but being interested in my case, he came back, explaining to me that he felt sure he could benefit me that afternoon. He gave me electric treatment again and after about half an hour I gradually was able to see first a light, and then his hand moving in front of my eyes. Further treatment and I was then able to see out through the window in my ward and plainly see a house and describe it in detail. I was, in fact, able to see quite well after his treatment that afternoon. Although the treatment was a little painful, I had every confidence that the doctor was doing his utmost for me, and getting back my sight was worth ten times the pain and discomfort.

This patient from complete blindness had 20/30 vision at the end of two hours' treatment. There was no resulting constriction of the color fields. Three months later, a letter from the sergeant says his eyesight is as good as it ever was.

The hysterical paralyses of the motor apparatus treated include forty-six monoplegias, fifty-four paraplegias, and nine hemiplegias. The treatment was practically the same in each of these cases, although it was found that the longer the duration of the paralysis, the more difficult was the cure. If, on the other hand, sensory disturbances, such as anesthesia or dysesthesia (which is always associated in the lay mind with the loss of power) were found, it was easy to remove the sensory disturbance by suggestion or by the faradic brush, or by both, and then resort to rapid reeducation. As a rule, the sufferer from a hysterical paralysis, sensory or motor, gives a history of its onset shortly after a slight wound or having been blown into the air, or even landing against the wall of the trench, experiencing a pain in the back or numbness in the affected extremity.

CASE 6.—Lieuenant B., aged 26, who had hysterical hemiplegia eighteen months, was completely cured in forty minutes. In September, 1916, he was knocked on the right side of the head and was unconscious for ten days. On regaining consciousness he was paralyzed on the left side of the body. There were no sphincter disturbances. Speech was normal. He felt as if the whole side of his body were dead and did not belong to him. He could not move the muscles of the left arm or leg. Practically no improvement occurred until June, 1917, when he was knocked over by a tram and was unconscious for two hours. On the following day he regained some of the power in the muscles of the left side of the body, but the numbness remained. On examination, loss of superficial and deep sensibility of the left half of the body to the midline was found. The deep and superficial reflexes were normal on both sides. The fields of vision were normal. The patient was treated by electrical suggestion. This patient is a professional musician and the same day, after the cure, practiced his violin for five hours, the first time in eighteen months.

CASE 7.—Gunner J. W., aged 25, who had hysterical paraplegia five months, was cured in forty-five minutes. The onset occurred in October, 1917, while the patient was in a bivouac. An aeroplane dropped a bomb just behind him. After the explosion he found his friend with his head half severed from the body and he remembers no more. He slept badly, had continual frontal headache, and when he thought of the unfortunate episode he went into a general shaking convulsion. He had not been able to stand for six months. Neurologic examination revealed both legs very rigid, and any attempt at voluntary movement resulted in marked coarse general tremor. The reflexes were increased throughout. The Babinski reflex was negative on right and left. There were no sensory nor sphincter disturbances. After continuous treatment for three quarters of an hour the patient was able to walk normally.

CASE 8.—Private S., aged 22, who had hysterical monoplegia five months, was cured in five hours. In December, 1917, he had cerebrospinal meningitis, for which many lumbar punctures were performed. During one of the punctures he felt a numbness in the left leg. He was able to perform his regular duties until March, 1918, when, during a march, he felt dizzy and fell unconscious to the ground. On recovering consciousness two hours later, he was unable to move a muscle in the left leg below the groin. It felt "as if it did not belong to him." On admission to the hospital, he walked with the aid of two crutches and dragged the left leg as if it were stuck to flypaper. Deep and superficial sensibility were profoundly disturbed below the level of the umbilicus front and back, to the left of the midline. Articular sensibility and likewise vibration sense in the same area were not perceived. The knee jerk, Achilles jerk and superficial abdominal reflexes on both sides were normal. The Babinski reflex was negative on both sides. There was complete inability to move a single muscle of the left leg below the groin. The patient was treated by suggestion and faradism for five consecutive hours, at the end of which time all sensory disturbance and muscle weakness had disappeared. He now walks normally.

Sometimes a true hysteria follows a severe wound. In this case the hysterical symptoms are superimposed on the organic but do not disappear *pari passu* with the healing of the wound. It is here that the greatest difficulties in diagnosis try the physician.

CASE 9.—Captain W., aged 28, who had an organic lesion of the brachial plexus with hysterical paralysis of the upper extremity, after healing of the wound, for twenty-four months, was cured in twenty-five minutes. He had received a gunshot wound through the left infraclavicular space, the bullet

emerging through the scapula behind. An aneurysm of the left subclavian artery resulted, which was later ligated. The brachial plexus was also injured, but the torn nerves were sutured. The whole left arm was paralyzed, but the patient gradually became able to move his arm so that with great effort the fingers could be made to twitch. Similar movements of the forearm were possible, after effort. Examination of the left arm revealed practically no radial pulse, and a slight general atrophy. The reflexes were all normal. There was marked general muscular weakness. Sensibility was impaired for touch and pain below the shoulder girdle. In twenty minutes the patient was practically cured, except for a slight weakness of his little finger, which remained in slight abduction. He was returned to his command on his urgent request in two weeks.

Hysterical Disturbances of Gait.—Various authors have described and given names to different types of disordered gaits. So far as treatment is concerned, it is the same in each case, namely, strong suggestion with or without faradism, followed by rapid reeducation. In this series there were thirty cases, including four by astasia abasia, twenty of stasobasophobia, and six of dancing gait.

CASE 10.—Private J. P., aged 20, who for five months had stasobasophobia, with relapse after violent emotion, was cured in seven minutes. In September, 1917, he was blown up and was unconscious for twenty-four hours. He awoke in a casualty clearing station. He was unable to speak, had tremors, walked in his sleep, had terrifying dreams and suffered from severe occipital and frontal headaches. A few days later he recovered his speech, but talked with a stammer. He was treated by hypnotism and electricity and was sent back to his unit in December, 1917. On his journey back, which occupied six days, he was spending the night in a rest camp when a bomb dropped and exploded within a few feet of the patient while he was in bed. He was extricated from the wreckage, but was unable to walk. He was dazed, stammered, and complained of pains in the head and in the base of the spine. His legs felt numb and cold. He said he received "very harsh treatment with electricity and very little improvement" in two hospitals. He cured himself of stammering by reading aloud. Examination was negative except for inability to maintain the erect posture, and fear of falling unless he had two crutches to aid him to stand. All muscular movements were executed fairly well in bed. A five minute "straight talk" and two minute treatment with the faradic tetanic current sufficed to enable the patient to walk and to run in a perfectly normal manner. That day the patient took a 2 mile walk after lunch.

Fig. 4 (Case 11).—Patient with dancing gait before and after treatment.

CASE 11.—Private G. A., aged 21, who had dancing gait nine months, was cured in twenty minutes. The patient was blown up and was subsequently unable to stand for several weeks. Since then he had great difficulty in maintaining his balance even with the aid of a cane. He staggered a few steps to the right and as many to the left. At times he would halt suddenly and take a double shuffle to the front. When he lay on his bed he could execute all movements of the lower extremities very well. There were no neurologic disturbances of note. With the faradic current and strong suggestion the patient was able to get on his feet in ten minutes, and in ten more minutes of reeducative exercise he was walking.

Hysterical Tics, Tremors and Convulsions.—The forty cases of hysterical tics and tremors represented all the stages from a slight, coarse tremor which occurred during excitement or effort to the involuntary coarse jerking of the greater part of the body, worse on effort and even persisting at rest, but disappearing during sleep. Since emotivity is largely an accompaniment of these disorders, rest, strict isolation and continued suggestion must be employed to a great extent in the treatment. I have always considered stammering merely a form of functional tremor, for here also emotivity plays a leading rôle in its production, much more so than in the functional paralyses without tremor. In most cases the coarse tremor can be removed in a short time; but it is always necessary to study the patient psychologically for a shorter or longer period before treatment. The use of suggestion alone is very potent as a cure, but it is greatly enhanced by explaining to the patient in a terse, simple way, the rationale of the disability. As a prophylactic against relapses, physical exercises are indulged in for several successive weeks.

The tics are the most difficult of all the hysterical disorders to treat, as suggestion or even faradism rarely succeed rapidly in abolishing the disorder. In these cases, isolation, forced feeding and oft repeated corrective exercises before a mirror, together with strong suggestion, help naturally to cure this aggravating symptom. As the emotion subsides, the tic diminishes.

Sometimes, as in the following cases, one of double platysma spasm, the patient was cured after a very brief treatment.

CASE 12.—Private C., aged 44, who had double platysma spasm four months, was cured in three hours of continuous treatment. He was buried in a dugout and was being extricated when another shell burst nearby. This unnerved him, and he began to shake all over. He was carried to a shell hole and remained there for several hours until the barrage cleared. He was shaking so badly that he could not walk without the aid of two men. On the way to the hospital that day, he was knocked unconscious again, and when he regained his senses his head began to twitch and had continued to do so since. The patient was depressed, and had terrifying dreams, continual headache and difficulty in getting to sleep. When he did get to sleep it was fitful. The feet and hands were cold and clammy, the pupils were dilated, the reflexes increased. There was a continual jerking of the chin and neck in a forward movement, about forty times a minute. Slamming of a door or sudden noise sent the patient into a long continued spasm with contortion of the face and mouth. After several days of complete isolation, during which he was given strong suggestion and many reassurances as to his imminent cure, he was finally treated with a mild faradic current and cured after three hours of treatment.

RULES OF TREATMENT

Having thus detailed the treatment, I have been led, through my experience, to lay down the following general rules for the efficient, rapid, and complete cure of hysterical symptoms:

1. Study each case fully. Take a complete family and personal history, especially for previous nervousness or similar attacks, even though the character of the affection appears evident.

2. Study each case psychologically, before instituting treatment. This can take the form of a psychanalysis in the cases in which emotivity plays a prominent part. Encourage

the patient to talk of himself and thus gage his mental condition.

3. Produce an atmosphere of cure in the wards or office. This is best accomplished by contact with cured patients. A confident, optimistic atmosphere has helped to cure more hysterical symptoms than all the mechanical appliances.

4. The patient must seek the cure.

5. When the patient resists the cure, this must be broken down by strong persuasion, long continued, or by faradism.

6. The physician must, at all times, be master of the situation. He must have a ready response to all questions put to him by the patient.

7. Do not discontinue the treatment until the cure is accomplished.

8. Let the patient into your confidence, and explain to him in simple terms how his symptom is caused and how you propose to cure it immediately.

9. Be absolutely sure of your diagnosis before beginning treatment.

10. A quiet, firm sympathy, together with an air of supreme confidence, is essential for the "air of recovery" in the treatment room.

11. Hysteria is often promoted in the ward by mental contagion. If a severely affected patient is admitted it is best to isolate him for a short while and thus prevent this contagion.

12. The earlier the treatment is instituted after the occurrence of the symptom, the easier and more complete the cure. The fixation of the idea is thus prevented.

13. During the treatment of a paralyzed member, watch for the slightest voluntary movement of the limb on the part of the patient and use that for the point for further suggestion.

14. The method of treatment varies with the mentality of the patient, the desire for recovery, the degree of education and his social level.

(*a*) To the cultivated and intelligent, frankness should be the keynote. Suggestion often suffices for the cure.

(*b*) To the uneducated, simple suggestion plus a material method is usually necessary.

15. To avoid the distraction of the patient during treatment, all extraneous noises and movement should be eliminated.

16. The physician must possess a strong will power. He cannot convince unless he himself is convinced. He must display kindness, but his commands must be full of authority.

17. Results of treatment depend on the physician who plays the leading part. The patients are cured when they find their master.

18. Do not lose your temper. Have patience.

19. Select the best time for treatment, and if not successful after a time, cease, and recommence at a more favorable opportunity, explaining to the patient that rest is the cause for stopping. Meanwhile he should be completely isolated.

20. Do not give fresh suggestion to the patient or threaten him unless he is known to be a malingerer.

21. The ease of curability is largely dependent on the duration of the symptoms and the nature and number of previous treatments.

22. Contractures are more persistent than paralyses.

23. Strict military discipline and regular outdoor work are the necessary after-cure of these patients.

24. Make the disease an unprofitable one for the patient.

25. The cure of a hysterical symptom is a mental combat between the physician and the patient, in which the victory is on the side of the physician. This is the secret of psychotherapy.

26. The patient should be observed for a few weeks after the cure.

27. The most potent causes of failure to cure are ill will of the patient, unfavorable surroundings, and mistakes in diagnosis.

With these considerations as working hypotheses, any physician should be able to treat hysterical disorders successfully; but without them, failure stares him in the face.

American Red Cross Military Hospital No. 4.

THE SURGICAL TREATMENT OF EMPYEMA BY A CLOSED METHOD*

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The death rate from many hundred cases of empyema occurring in the United States Army during the winter of 1917-1918 was very high. The average mortality reported from the various camps was 30.2 per cent. Many camps reported between 45 and 60 per cent., and one camp reported a mortality of 84 per cent. in eighty-five cases.[1] Most of the deaths reported followed virulent *Streptococcus hemolyticus* infection. Whether or not this high death rate was due to the virulence of the infection or the treatment, it is evident that there are great possibilities for improvement in methods of treatment.

Fig. 1.—Tube inserted and fastened in place.

During the past seven months I have had the opportunity to observe seventy cases of empyema in the Walter Reed General Hospital, Washington, D. C., and as a result of this experience have adopted a method of treatment that is submitted as an improvement on the usual procedures. The chief features of this method are:

1. A single, early, minor operation without danger of shock or collapse of the lung.

2. Intermittent removal of secretion and antiseptic treatment given through a small rubber tube, with a bulb syringe.

3. Rapid partial sterilization with neutral solution of chlorinated soda (Dakin solution) followed by complete sterilization with a 2 per cent. dilution of liquor formaldehydi in glycerin.

4. Maintenance of negative pressure in the empyemic cavity, tending to early obliteration of the cavity.

5. One dressing which will last several days and no skin irritation.

6. Emphasis on simple physical principles rather than on major operative surgery.

DETAILS OF METHOD

If fluid in the pleural cavity is suspected, a diagnostic puncture should be made at once. If a smear from the fluid is negative, and the patient's condition per-

* Read before the staff of Walter Reed General Hospital, Oct. 16, 1918.

1. Cases of Empyema at Camp Lee, Va., Preliminary Report, by the Empyema Commission, THE JOURNAL A. M. A., Aug. 3, 1918, p. 366. Review of War Surgery and Medicine, August, 1918.

mits, it is best to wait for a culture report. Care must be taken not to operate on a sterile cavity; but if pyogenic micro-organisms are present, operation should be done immediately.

The location of the empyemic cavity is determined by physical examination, diagnostic puncture, and by roentgen ray when this is available. The place of election for operation is at the most dependent part of the cavity when the patient is either erect or recumbent.

If fluid is present in the ninth interspace, post-axillary line, this point is most desirable. The exact site of operation in this method is, however, not as important as in the usual thoracotomy procedures. The main point is to enter the cavity, preferably as low as possible. When operation is determined on, the field is sterilized and enough 0.5 per cent. procain injected intradermally to make a well blanched wheal the size of a dime and about 4 c.c. just between the ribs. With a knife, 6 mm. wide, a stab is made through the skin and then with a 7 mm. trocar and cannula the thoracic wall is punctured midway between the ribs so as to avoid the intercostal vessels and nerve.

The trocar is withdrawn and a finger immediately placed over the end of the cannula to prevent pus from escaping or air from entering. The finger is removed and a rubber tube instantly inserted through the cannula into the chest cavity. The tube, when introduced, should fit closely into the cannula and be held closed so that no air can enter, and should be long enough to extend from 2 to 6 inches outside of the cavity.

The cannula is now withdrawn and slipped off the tube, leaving the latter firmly held, air tight, in the chest by the contracting wall of the wound.

While the use of a trocar and cannula is to be preferred, it is not essential; and in case no trocar and cannula are at hand, a small stab wound should be made and the rubber tube carried into the pleural cavity by use of a curved hemostat.

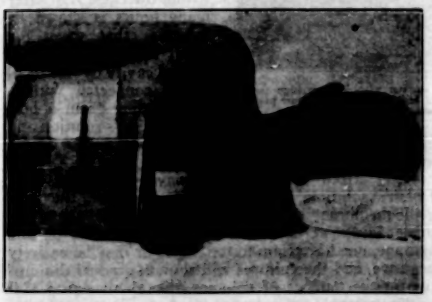

Fig. 2.—Finished dressing, bottle of Dakin's solution, and tissue forceps.

The length of the tube in the cavity depends on the shape and size of the cavity. If the cavity is small, the tube need be inserted barely through the thoracic wall. In large or irregular cavities, the tube can reach from 2 to 8 inches within, and should occasionally have a 2 mm. fenestra in the side at a point just inside the chest wall, in order more easily to make possible the aspiration of all fluid from the cavity.

The dressing is small and does not hinder free expansion of the chest. The tube once inserted is thus fastened in place: A 1-inch safety pin is thrust through the edge of the tube, so as not to obstruct the lumen. Between this and the skin is placed a thin pad of gauze, 1 inch square, split to the center (Fig. 1).

Fig. 3.—Empyemic cavity, containing air, outlined by heavy wall indicated by arrow, and with tube entering lower part.

On top of the pin is a similar pad with a split turned the opposite way. Over all is placed a pad 2 inches square, of ten layers of fine meshed gauze, in the center of which a hole to admit the tube snugly has been made with a rounded and pointed instrument and never by cutting. This pad is held by four strips of adhesive plaster, each 1½ inches wide and 3½ inches long, making the finished dressing a 3½-inch square (Fig. 2). This dressing will last several days, as no discharge escapes around the tube.

By means of a half-ounce bulb urethral syringe, all the pus is aspirated from the cavity through the tube, and reversely; the cavity is washed out with Dakin's solution. No air is allowed to enter the tube or, through it, the pleural cavity. To prevent entrance of air and contamination, the tube is kept closed at the tip end by a spring clip between treatments.

Each patient should have his individual syringe and Dakin's solution in a wide mouth bottle to which is attached a wire to hold the tissue forceps. During aspiration and washing out, forceps and not the fingers should be used to compress and close the tube each time the syringe is removed for emptying or filling it, to eliminate possible contamination.

In giving treatment, the tube is first compressed with the forceps, the clamp removed, the nozzle of the syringe inserted with the bulb compressed, and the secretions that have accumulated since the last treatment are aspirated. One has to make sure that the negative pressure is maintained by not allowing air to enter through the tube. When, by this means, all the secretions have been aspirated, the method is reversed and from 20 to 60 c.c. or more of Dakin's solution are injected, not instilled, into the cavity. For aid in cleansing, the solution is agitated in the cavity by quick

compressions and expansions of the bulb. Aspiration is performed again and this process is repeated until the fluid comes away clear. Then the cavity is refilled to about one-half the original capacity, and the clamp is applied and left for from five to thirty minutes, during which time the patient should change his position frequently to make the contained mixture homogenous and bring the solution in contact with all the infected pleural surfaces.

The frequency of aspirations and injections depends on the general condition of the patient. Beginning with the operation, treatments are given every two hours by day and every three hours by night, until all the pyogenic membrane and fibrous exudate have been dissolved, a process which usually takes from one to four days, depending on the kind of infection, and which may be determined by the amount and color of the sediment. In *Streptococcus hemolyticus* infection, the membrane and fibrous deposits will require a longer time to dissolve than is usual with other infections.

If the pneumonic process in the lung is still active, the treatments should not be given oftener than every six to eight hours until the pneumonia subsides, as more frequent treatments will cause a reaction indicated by an increased rise of temperature and pulse rate. As soon as the pneumonia has subsided, the patient should be allowed out of bed, and as strength increases should be given deep breathing and light setting up exercises. With this method, it is not necessary to keep patients in bed in cases of uncomplicated empyema, or have them use Woulfe bottles.

Fig. 4.—Same cavity obliterated by suction with bulb syringe (negative pressure); thickened visceral pleura indicated by arrow now pressed against thoracic wall and all air removed.

While Dakin's solution, because of its free chlorin and alkalinity, is one of the greatest solvent bactericides in general use, its action is brief. In a series of cavities cleansed in the manner described above, and with 150 c.c. of Dakin's solution, testing 0.49 per cent. of free chlorin when first injected and kept agitated with a syringe, of which solution 10 c.c. were then withdrawn every minute for five minutes, the average test of the fluids withdrawn gave successive strengths of 0.38, 0.28, 0.19, 0.11 and 0.07 per cent. This shows the solution to be practically inert as a bactericide and solvent after five minutes. Early withdrawals of the solution allow longer periods of negative pressure and opportunity for expansion of the lung. If pressure symptoms are too marked in a given case, at the expiration of five minutes the solution should be withdrawn, and the amounts injected should be decreased.

When the Dakin solution comes in contact with the cavity exudate, chloramins form which also have bactericidal properties (lasting thirty minutes to one hour—Dakin), and for this reason the solution is usually left in for several minutes.

The original tube is not usually removed until the cavity is obliterated by adhesions. The dressing will ordinarily last until the tube is ready to be removed; and, as there is no cumbersome apparatus of bottles and tubing to manipulate, the attending surgeon needs only one nurse as an assistant in giving treatments.

The surgeon himself should give at least one treatment daily, and take cultures and smears. The other treatments may be given by a properly instructed nurse.

The cavity should be filled once daily to three-fourths its original capacity, to prevent the walling off at the border of the cavity of small pockets before the cavity is sterile; for, if such pockets are formed, convalescence is prolonged and secondary operations may be necessary.

The secretions in the cavity should be agitated vigorously by quick compression of the bulb so as to make a more homogeneous emulsion before taking the culture and smear. The assistant will handle the sterile test tubes and make the smears while the surgeon gives the treatment. It is important to note that the amount of negative pressure obtained by the suction of the half-ounce bulb syringe is considerable, as such a syringe will lift water to a height of 7 feet in a 6 mm. tube. Also roentgenograms taken just after such negative (suction) pressure has been made show large pleural cavities, even those of old standing, to be almost obliterated (Figs. 3 and 4). If at any time air is allowed to enter and cause the lung to collapse, full expansion is reestablished by this process. That the negative pressure is maintained within the chest wall after many hours is shown by the fact that when the tube fastened into the pleural cavity by this technic is connected with a tube leading from a bottle of Dakin's solution and clamp on the chest removed, the solution will be drawn into and fill the cavity.

After from one to seven days' treatment with Dakin's solution, given as described above, the pyogenic membrane will have been dissolved and the cavity made fairly sterile. The smears will show, on the average, one bacterium to ten fields, or may be entirely negative, and the cultures will show a gradual diminution in the number of colonies, though they may still be innumerable. Continuance of the Dakin solution would, in time, probably sterilize the cavity completely; but instead of continuing the Dakin solution at this stage, one should change to and inject a 2 per cent. dilution of liquor formaldehydi in glycerin, once or twice daily, for these reasons:

1. Cultures become sterile in from one to ten days, generally the second or third day.

2. As the solution of formaldehyd is a much stronger bactericide than the Dakin solution, there is less danger of pus pockets forming.

It is to be noted that with the use of Dakin's solution smears may be negative when cultures are positive. With formaldehyd solution the reverse is true; cultures are negative but smears may be positive. In other words, bacteria present under Dakin's solution treatment, while few in number, are viable; under formaldehyd treatment, they may be more numerous but are nonviable.

The formaldehyd solution is injected in amounts of from 3 to 40 c.c. daily and left in the cavity from twelve to twenty-four hours. Before each injection with formaldehyd solution the cavity is given one of the usual Dakin treatments. At first, the formaldehyd injection usually is followed in about four hours by a rise of temperature of from 1 to 3 degrees, a slight burning sensation in the cavity and, occasionally, pain in the shoulder and neck of the affected side and, at times, in the epigastrium. For this reason, it is not advisable to use the formaldehyd solution in acute cases until the usual course of treatment with Dakin's solution is given and the pneumonia, if present, has subsided.

The first injection in large cavities should not be more than 10 c.c. In twenty-four hours the cavity will usually contain from 20 to 120 c.c. of brownish fluid. This should be aspirated and the cavity filled two-thirds the original capacity with Dakin's solution left in for several minutes, aspirated, and the formaldehyd solution again injected. If the cavity is large, and the reaction not severe, 40 c.c. may be used. In two or three days, the fluid will become serosanguineous, and usually no colonies grow on cultures made on blood-agar plates. After the cultures are negative for three successive days, the amount of formaldehyd solution instilled daily should be reduced to from 3 to 10 c.c. and the maximum negative pressure maintained until the cavity has been reduced to a content of 50 c.c. or less.

The size of the cavity can be determined by injecting Dakin's solution and noting the resistance offered when pressing the bulb and the force of expulsion of the solution when the syringe is removed and the tube left open. Care must be taken not to break up new adhesions.

Under the treatment described above, adhesions soon form because of the thorough cleansing, irritation and rapid partial sterilization by the Dakin solution, followed by the complete sterilization by the formaldehyd solution, and the close contact of the parietal and visceral pleuras due to the long, constant negative pressure.

REPORT OF CASES

The following cases of the thirty-two treated by the closed method are reported as fairly typical:

CASE 1.—*Streptococcus hemolyticus infection, complicated by a bronchial communication. Attempt for two months to cure by repeated aspirations, but sterilization in six days by the closed method, with the use of Dakin's solution alone.*

A private, aged 29, admitted to Walter Reed General Hospital, May 20, from a base hospital, was diagnosed, April 4, as having lobar pneumonia, Type III.

May 21, the patient weighed 96 pounds, was anemic and nervous, had insomnia and anorexia, and could not lie down. He raised 250 c.c. of thick sputum daily. Roentgenoscopy revealed density in the left chest, lower lobe.

May 23, pleuracentesis at the fifth interspace, postaxillary line, yielded 300 c.c. of thick pus. Smear showed streptococcus; culture showed pure *Streptococcus hemolyticus.*

June 5, 350 c.c. of pus were aspirated at the seventh interspace, postaxillary line.

June 14, there was slight improvement; the cough was less.

June 20, the patient was coughing much at night and morning, was extremely nervous, and cried at times, saying he did not know why. Repeated sputum examination was negative for tubercle bacilli.

July 12, 150 c.c. of green pus were aspirated at the ninth interspace postaxillary line.

July 14, there had been no cough for the last two days, except when the patient lay down. He slept propped up in bed.

July 16, he weighed 102. The closed method of treatment was instituted; a stab puncture was made at the ninth interspace, postaxillary line, and 350 c.c. of greenish pus were aspirated through a small rubber tube. Culture showed pure *Streptococcus hemolyticus.* A communication of the cavity with a bronchus made impossible a negative pressure and prevented the injection of more than 175 c.c. of Dakin's solution, which amount was used as regular treatment.

July 23, the patient had walked about the ward and outside at will since the operation. He weighed 108 pounds. There was no cough, the patient was ravenous, he slept soundly, and lay in any position.

July 26, Dakin's solution was stopped. Smears and cultures had been negative for three days.

August 6, the tube was still in place. Smears and cultures had been negative, daily, for the past nineteen days. Communication was open. The injection of 10 c.c. of formaldehyd solution, daily, was begun.

August 10, the patient weighed 122 pounds. Communication was closed, and negative pressure maintained.

August 20, the tube was removed. No suture was made.

September 20, the wound had now been closed one month. The patient weighed 136 pounds, a gain of 34 pounds, and felt normal.

CASE 2.—A private, aged 24, admitted from a base hospital to Walter Reed General Hospital, July 19, was diagnosed as having lobar pneumonia, July 3. A diagnostic puncture yielded thick, greenish pus. Smear showed five bacteria to the field, and the Type II pneumococcus was later determined.

July 19, the closed method treatment was instituted. A trocar-cannula puncture was made, a tube introduced through the cannula, and 350 c.c. of pus removed. The usual Dakin treatments were given, and on the second day when 150 c.c. of Dakin's solution were injected, the patient showed bronchial communication. The amount was reduced to 125 c.c. each treatment, and on the fourth day, smear showed one bacterium to five fields. Cultures were taken daily, though the number of colonies gradually decreased; July 29, they were still innumerable. The formaldehyd solution was then used, and in two days cultures were negative and smear showed one bacterium to five fields.

July 31, the treatment could have been safely stopped, but was continued to reduce the size of the cavity and to determine also if the smears could not be made negative.

August 18, the smears were positive and culture was negative. The tube was removed.

September 20, the wound had been closed one month. The patient gained 24 pounds and was on furlough.

CASE 3.—A private, aged 23, admitted, August 28, to Walter Reed General Hospital from a base hospital, had been diagnosed, July 23, as having left lobar pneumonia. He weighed 130 pounds. The temperature was 99.8, pulse 100, and respiration 32. He had had little sleep the past week.

August 29, roentgenoscopy revealed an encapsulated empyema extending from the fourth to the tenth rib, posteriorly, on the left side. The closed method of treatment was instituted.

Following a diagnostic puncture, a trocar-cannula puncture was made, and 575 c.c. of thick green pus, containing three bacteria per field, were removed through a small rubber tube. The patient was treated with Dakin's solution for two days, and formaldehyd solution one day, and then the smear showed one bacterium in ten fields and culture was negative. Daily injection of 3 c.c. of formaldehyd solution was given and

negative pressure maintained for five days longer, when the tube was removed.

October 3, the wound had been closed twenty-eight days. The patient returned from furlough, weighing 164 pounds. There was full expansion of the chest. The physical and roentgenographic findings were negative. There was a scar as if made by a small bullet.

CASES TREATED BY THE CLOSED METHOD

	Number
Cases treated by the closed method exclusively	11
Treated first by open thoracotomy, followed by the closed method	21
Total	32
Recovered and returned to duty	10
Convalescent and out of hospital on furlough	16
Still under treatment*	6
Died	0
Discharged for disability	0
Total	32

* Three of the six cases still under treatment are of but one week's duration and the patients are doing well. The other three are left overs from open thoracotomy treatment and are now being treated by the closed method, superimposed on long antecedent open treatment.

None of the patients have died, but it is recognized that this fortunate outcome cannot obtain in a larger series of cases.

That twenty-six of the thirty-two patients, 81+ per cent., have entirely recovered without secondary operation or crippling complications is submitted as justification for further trial of the method advocated.

In seven cases treated here, repeated needle aspirations were used. One patient was apparently cured and returned to duty; four patients, who had small cavities, are still under observation, slowly improving after long periods of convalescence. Two, having become gradually worse after repeated aspirations, were treated by the closed method and cured in a short time. Had the other five been treated by the writer's method, it is believed that cure would have been affected in less than one-fifth the time.

Twenty of the thirty-one cases were of long standing. These cases had received the usual large thoracotomy incision with resulting chronic sinuses and cavities varying in size from 60 to 700 c.c. capacity. With fifteen other cases, they had been treated with dichloramin-T, 5 per cent., in chlorcosane, in amounts of from 5 to 75 c.c. daily for six weeks, with very poor results. The empyemic cavities of this series of eighteen cases remained positive for organisms even under the most intensive treatment with Dakin's solution, but became sterile in from one to ten days with the combination treatment of Dakin's solution and formaldehyd solution by the closed method. In these cases, after failure to cure by treatment through the thoracotomy openings, the large drainage tubes were replaced by smaller ones sealed into the cavity, after which the cases were treated as if they were originally closed method cases. The small cavities were given two treatments daily with the Dakin solution, followed by the formaldehyd solution. In two of these cases, while the large wounds were closing, it was necessary to use a rubber dam about 3 inches square, fastened with a double layer of adhesive plaster in order to establish and maintain negative pressure. Five hundred c.c. of Dakin's solution were injected into the large pleural cavities at 9 a. m., 3 p. m. and 6 p. m., and left in for about forty-five minutes. Following the last treatment, 40 c.c. of the formaldehyd solution were injected and left in over night.

While, in treating empyema cases, roentgen-ray and bacteriologic facilities are to be preferred, they are not absolutely essential when the closed method is used. After treatment from one to six days with Dakin's solution, followed by a few days' treatment with the formaldehyd solution, if the secretion has become a clear, serosanguineous fluid, one can feel fairly assured that the cavity is surgically sterile, even though no smears or cultures are made.

COMPLICATIONS

In ten cases in the series treated, a communication existed between the empyemic cavity and a bronchus. We think this complication exists more often than is generally believed. These communications caused but little interference in giving treatment with Dakin's solution. The patient can detect when the solution enters a bronchus, and thereafter the injection was always stopped just before the solution reached an amount that would enter the bronchus. The formaldehyd solution, which was used in six of these cases, seemed to hasten the closure of this opening.

One patient developed spontaneous pneumothorax:

CASE 4.—A private, aged 31, was first treated for five weeks by repeated needle aspirations. He became gradually worse, and a small stab wound was made and 800 c.c. of *Streptococcus hemolyticus* pus were aspirated through a rubber tube and the case thereafter treated by the closed method. Rapid recovery ensued. The patient gained 37 pounds in forty-eight days. After the wound had been closed for three weeks, without any warning, one night while the patient was in bed, he developed a spontaneous pneumothorax. This could not be satisfactorily explained, though it was thought probably due to rupture of a small peripheral abscess of the lung. The patient had a chill and cold sweat. The temperature was 105, pulse 150, and respiration 40. The anterior left chest up to the fourth rib, where no aspiration punctures had been made, was highly tympanitic, and the posterior side was very dull, owing to the compressed lung. The patient lost 16 pounds in the week following, but regained this in ten days.

COMPARISON WITH OTHER METHODS

The closed method is to be compared with treatment by repeated aspirations and the open methods of thoracotomy, either intercostal, or by resection of a short length of one or two ribs.

The repeated aspiration method always means more or less pain and a long period of convalescence. While pressure symptoms may be relieved through evacuation of the pus, the cavity is seldom completely emptied, and the absorption of toxins continues.

Murphy was first, many years ago, to use a 2 per cent. dilution of liquor formaldehydi in glycerin in the pleural cavity, and modified the treatment by simple aspiration, as follows: He withdrew the pus through a needle, immediately injected the formaldehyd solution, and allowed it to remain for from one to four weeks. This process was repeated usually three or four times until the pus in the cavity became sterile and converted into a serosanguineous fluid. This, he asserted, would be absorbed in from three to twenty months, and the cavity obliterated.

The open method, whether by rib resection or intercostal thoracotomy, is always accompanied by much pain and discomfort. The profuse discharge necessitates a large and expensive dressing which requires changing from two to six times daily. When Dakin's solution is used to irrigate the cavity, large amounts of petrolatum gauze must necessarily be used to protect the skin from irritation. The open wound not only invites contamination but also allows the lung to collapse and not uncommonly causes death from

shock. For this reason, some users of the open method advocate delayed operation with repeated needle aspirations to relieve pressure symptoms, and permit adhesions to form to prevent the lung from collapse when the cavity is opened. With the closed method, the aspirations and delay are not necessary.

Deaths from hemorrhage soon after thoracotomy operations have been reported, and no doubt this accident occurs more often than is reported or suspected. In prolonged drainage cases, a large drainage tube may wear through the periosteum and cause an erosion of the rib, producing pain or causing fatal hemorrhage from one of the intercostal vessels.

In thoracotomy cases, the resulting scar is large and unsightly. It is frequently adherent to the ribs, and if so, is always more or less painful.

In closed method cases, the scar is so small as to be almost imperceptible, and is freely movable as no adhesions exist between it and the underlying tissues.

When the open method is used, with resulting complete or partial collapse of a lung, and there exists a severe bronchial or pneumonic involvement of the opposite lung, the patient's respiratory area is so diminished that chances of recovery are extremely poor, whereas, by using the closed method, as there is no collapse of the lung, the chances of recovery are very good.

Though we have as yet treated no cases of double empyema by the closed method, there is every reason to believe that in double empyema the pleurae of both lungs can be treated at the same time, which is an impossibility with the open method, and with even a better chance of recovery than with the open method when but one pleura is involved

When the Carrel treatment is instituted through a large thoracotomy incision, and several Carrel tubes are inserted, there is more or less uncertainty as to their position. Those which go to the upper part of the cavity permit only a momentary flush of Dakin's solution at each treatment, and the reflux at once pours out through the incision, giving the solution opportunity to give up only a small part of its available chlorin. On the other hand, in the dependent part of the cavity, a "puddle" is formed which acts as a mechanical barrier, preventing the newly "instilled" Dakin's solution from reaching the infected pleura, and also acts as a diluent, thus in both ways defeating the very principle on which the antiseptic action of Dakin's solution is based, namely, that the solution must not be below 0.40 per cent. in available chlorin, to be an efficient bactericide.

In cases of multilocular cavities, walled off by firm adhesions and not connected by lacunae, the open operation is advised so as to break up the adhesions. The incision should then be sutured to fit a small tube and the cavity treated by the closed method.

It is possible that an open operation may be necessary in some cases of long standing when the lung is somewhat fixed in compression or bound down by firm adhesions; but even in these cases we are not sure but that persistent negative pressure by the closed method will, in time, overcome the trouble.

We believe, if the closed method of treating empyema in acute cases is carried out properly, that there will rarely be any necessity for the Schede, Eastlander or Delorme operations.

Recent experience in five cases has shown that sodium hypochlorite solution with an increased alkalinity and three times the amount of available chlorin which is in Dakin's solution can be used in empyemic cavities by the closed method, with perfect safety.

With such a wide margin in the strength of the hypochlorite solution that can be used in empyemic cavities, it is practicable for those who do not have the usual facilities for making Dakin's solution to purchase a concentrated hypochlorite solution and dilute to the proper strength before using. Liquor sodae chlorinatae (Labarraque's solution), which is an official U. S. P. product, containing 2.5 per cent. of available chlorin, is preferable. This solution is easily available and can be used in a dilution of one part to from three to five parts of distilled water.

While a hypochlorite solution is to be preferred, we believe that sterile physiologic sodium chlorid solution, weak iodin or potassium permanganate solutions would be very efficient in the few days' preliminary treatment of the empyemic cavity by the closed method *before* using the formaldehyd solution, but as yet have had no experience with any solutions other than the hypochlorite.

CONCLUSIONS

1. Early operation by the closed treatment method has the following advantages:

(*a*) It can be done without shock to the patient or collapse of the lung.

(*b*) It provides perfect evacuation and cleansing of the empyemic cavity.

(*c*) It prevents absorption of toxins.

(*d*) It prevents the lung, compressed by the exudate, from becoming fixed in compression.

2. Sterilization is more rapid by the closed than by the usual methods, as the antiseptics are held in contact with the infected surfaces until they have exerted their full bactericidal action.

3. Dakin's solution followed by a 2 per cent dilution of liquor formladehydi in glycerin is the most ideal antiseptic method of treating empyema.

4. Communication of an empyemic cavity with a bronchus is more common than is generally suspected. It is not a contraindication to the use of Dakin's solution and formaldehyd solution, and more readily closes when these are used.

5. Constant negative pressure gives the maximum expansion of the lung, and the irritating and cleansing action of sodium hypochlorite solution causes rapid obliteration of the cavity.

6. In uncomplicated cases of empyema, the patient need not be kept in bed.

7. Test smears are negative when cultures are positive when Dakin's solution is used and vice versa when formaldehyd-glycerin is employed.

8. Roentgenographic and bacteriologic laboratory facilities, while always to be preferred, are not absolutely essential in treating empyema by the closed method.

9. The closed method is productive of great economy of time, labor and dressing material.

10. Treatment by the closed method can effect cures in many cases similar to those that are usually treated by the Schede, Eastlander or Delorme operation.

11. The closed method is practicable in the home and in country practice.

12. A hypochlorite solution of increased strength over Dakin's solution in both alkalinity and amount of available chlorin can be used in empyemic cavities with safety.

13. Labarraque's solution, diluted to the strength indicated, can be substituted for Dakin's solution.

14. The closed method offers good chances of effecting cures in cases of double empyema, through the possibility of treating the empyemic cavities on both sides at the same time, which treatment is impossible by the open method.

Walter Reed General Hospital.

INFLUENZA

REPORT OF A SPECIAL COMMITTEE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

[NOTE.—*To afford such aid as may be possible to administrative health officials, a committee of the American Public Health Association, consisting of Drs. W. A. Evans, Chicago, chairman; D. B. Armstrong, Framingham, Mass.; William H. Davis, Washington, D. C.; Mr. E. W. Kopf, New York, and Dr. William C. Woodward, Boston, was charged with the duty of preparing a provisional working formula, based on the facts and opinions presented at the meeting of the association in Chicago, Dec. 9 to 12, 1918. Because of the timely and important character of the subject, the report is published in full.*—ED.]

NATURE OF THE EPIDEMIC

The present epidemic is the result of a disease of extreme communicability. So far as information available to the committee shows, the disease is limited to human beings.

The micro-organism or virus primarily responsible for this disease has not yet been identified. There is, however, no reason whatsoever for doubting that such an agency is responsible for it. Mental conditions may cause a person to believe he has influenza when he has not, and may make the patient who has the disease suffer more severely than he otherwise would. No mental state alone, however, will cause the disease in one who is not infected by the organism or virus that underlies the malady.

While the prevailing disease is generally known as influenza, and while it will be so referred to in this statement, it has not yet been satisfactorily established that it is the identical disease heretofore known by that name, nor has it been definitely established that all preceding outbreaks of disease styled at the time "influenza" have been outbreaks of one and the same malady.

There is no known laboratory method by which an attack of influenza can be differentiated from an ordinary cold or bronchitis or other inflammation of the mucous membranes of the nose, pharynx or throat.

There is no known laboratory method by which it can be determined when a person who has suffered from influenza ceases to be capable of transmitting the disease to others.

Laboratories are necessary agencies for the supervision and ultimate control of the disease. The research laboratory is necessary for the discovery of the causative micro-organism or virus, and for the discovery of some practicable method for the propagation of a specific vaccine and a curative serum. Clinical laboratories are necessary for the supervision and control of such vaccines and serums as may be used from time to time for the prevention of the disease and for therapeutic purposes, and for the information such laboratories can give to health officers and physicians as to such variations in the types of infective micro-organisms as occur during the progress of an epidemic.

Deaths resulting from influenza are commonly due to pneumonias resulting from an invasion of the lungs by one or more forms of streptococci, or by one or more forms of pneumococci, or by the so-called influenza bacillus, or bacillus of Pfeiffer. This invasion is apparently secondary to the initial attack.

Evidence seems conclusive that the infective micro-organism or virus of influenza is given off from the nose and mouth of infected persons. It seems equally conclusive that it is taken in through the mouth or nose of the person who contracts the disease, and in no other way, except as a bare possibility through the eyes, by way of the conjunctivae or tear ducts.

PREVENTION

If it be admitted that influenza is spread solely through discharges from the noses and throats of infected persons finding their way into the noses and throats of other persons susceptible to the disease, then no matter what the causative organism or virus may ultimately be determined to be, preventive action logically follows the principles named below and, therefore, it is not necessary to wait for the discovery of the specific micro-organism or virus before taking such action.

I. Break the channels of communication by which the infective agent passes from one person to another.

II. Render persons exposed to infection immune, or at least more resistant, by the use of vaccines.

III. Increase the natural resistance of persons exposed to the disease, by augmented healthfulness.

I. *Breaking the Channel of Communication.*—

(*a*) By preventing droplet infection. The evidence offered indicates that this is of prime importance.

(*b*) By sputum control. The evidence offered indicates that the danger here is due chiefly to contamination of the hands and common eating and drinking utensils.

(*c*) By supervision of food and drink. Evidence offered does not indicate much danger of infection through these channels.

Details and practical methods possible for the limitation of infection through droplets, sputum, and food and drink are discussed later under special preventive methods.

II. *Immunization and Vaccines.*—(These are discussed in a report of the laboratory committee farther on.) In the present epidemic vaccines have been used to accomplish:

1. The prevention or mitigation of influenza per se.

2. The prevention or mitigation of complications recognized as due to the influenza bacillus or to various strains of streptococci and pneumococci.

In relation to the use of vaccines for the prevention of influenza, the evidence that has come to the attention of the committee as to the success or lack of success of the practice is contradictory and irreconcilable. In view of the fact that the causative organism is unknown, there is no scientific basis for the use of any particular vaccine against the primary disease. If used, any vaccine must be employed on the chance that it bears a relation to the unknown organism causing the disease.

The use of vaccines for the complicating infections rests on more logical grounds, and yet the committee has not sufficient evidence to indicate that they can be

used with any confident assurance of success. In the use of these vaccines the patient should realize that the practice is still in a developmental stage.

The committee believes that when vaccines are used experimentally for the purpose of determining their preventive or curative value, the following conditions should be complied with:

1. The groups of vaccinated and unvaccinated persons should be the same in number.
2. The relative susceptibilities of the two groups should be equal, as measured by age and sex distribution, previous exposures to infection without development of influenza, and a previous history as to recent attacks of the disease.
3. The degree of exposure in each group should be practically the same in duration and intensity.
4. The groups should be exposed concurrently during the same stage of the epidemic curve.

III. *Increased Natural Resistance of Persons Exposed to Infection.*—Physical and nervous exhaustion should be avoided by paying due regard to rest, exercise, physical and mental labor, and hours of sleep. The evidence is conclusive, however, that youth and bodily vigor do not guarantee immunity to the disease.

The nature of the preventive measures practicable and necessary in any given community depends in a large part on the nature of the community itself, as to population characteristics, industries, and so on, and on the stage and type of the epidemic curve. For example, the measures to be adopted in a purely rural community would not be practicable or desirable in a large metropolitan area, nor would the measures desirable and feasible at the beginning or end of an epidemic be found those best adapted for the intervening period. The committee has found it impossible, therefore, to lay down any rules for the guidance of all health officials alike in preventive measures. The most it has been able to do has been to state certain general principles that in its judgment should underlie administrative measures for the prevention of influenza. The application of these principles to the needs of any particular community must be left for determination by the officers of that community who are responsible for the protection of its public health.

The preventive measures recommended by the committee are as follows:

A. Efficient organization to meet the emergency, providing for a centralized coordination and control of all resources.

B. Machinery for ascertaining all facts regarding the epidemic:

1. Compulsory reporting.
2. A lay or professional canvass for cases, etc.

C. Widespread publicity and education with respect to respiratory hygiene, covering such facts as the dangers from coughing, sneezing, spitting, and the careless disposal of nasal discharges; the advisability of keeping the fingers and foreign bodies out of the mouth and nose; the necessity of hand-washing before eating; the dangers from exchanging handkerchiefs; and the advantages of fresh air and general hygiene. Warnings should be given regarding the danger of the common cold, and possibly colds should be made reportable so as to permit the sending of follow-up literature to persons suffering from them. The public should be made acquainted with the danger of possible carriers among both the sick and the well and the resultant necessity for the exercise of unusual care on the part of everybody with respect to the dangers of mouth and nasal discharges.

D. Administrative procedures:

1. There should be laws against the use of common cups, and improperly washed glasses at soda fountains and other public drinking places, which laws should be enforced.
2. There should be proper ventilation laws, which laws should be enforced.

Since the disease is probably largely a group or crowd problem, the three following subheads are especially important:

3. *The Closing of Meeting Places.*—Since the spread of influenza is recognized as due to the transmission of mouth and nasal discharges from persons infected with influenza, some of whom may be aware of their condition but others unaware of it, to the mouths and noses of other persons, gatherings of all kinds must be looked on as potential agencies for the transmission of the disease. The limitation of gatherings with respect to size and frequency, and the regulation of the conditions under which they may be held must be regarded, therefore, as an essential administrative procedure.

Nonessential gatherings should be prohibited. Necessary gatherings should be held under such conditions as will insure the greatest possible amount of floor space to each individual present, and a maximum of fresh air, and precautions should be taken to prevent unguarded sneezing, coughing, cheering, etc.

Where the necessary activities of the population, such as the performance of daily work and the earning of a living, compel considerable crowding and contact, but little is gained by closing certain types of meeting places. If, on the other hand, the community can function without much contact between the individual members, relatively much is gained by closing or preventing assemblages.

Schools: As to the closing of schools, there are many questions to be considered.

(*a*) Theoretically, schools increase the number and degree of contacts between children. If the schools are closed, many of the contacts which the children will make are likely to be outdoors. Whether or not closing will decrease or increase contacts must be determined locally. Obviously, rural and urban conditions differ radically in this regard.

(*b*) Are the children in coming to and going from school exposed to inclement weather or long rides in overcrowded cars?

(*c*) Is there an adequate nursing and inspection system in the schools?

(*d*) Is it likely that teachers, physicians and nurses can really identify and segregate the infected schoolchild before it has an opportunity to make a number of contacts in halls, yards, rooms, etc.? We suggest that children suspected of having influenza and held in school buildings for inspection should be provided with and required to wear face masks.

(*e*) Will the closing of schools release personnel or facilities to aid in fighting the epidemic?

(*f*) If schools are kept open, will the absence of many teachers lower the educational standards?

(*g*) If a number of pupils stay at home because of illness or fear, will they not constitute a heavy drag on their classes when they return?

(*h*) If schools are closed, is there likely to be an outbreak in any case when they are reopened?

Churches: If churches are to remain open, services should be reduced to the lowest number consistent with the adequate discharge of necessary religious offices, and such services as are held should be conducted in

such a way as to reduce to a minimum the intimacy and frequency of personal contact.

Theaters: As regards theaters, movies, and meetings for amusement in general, it seems unwise to rely solely or in great part on the ejection of careless coughers. In the first place it is difficult to determine who is a careless cougher, and after each cough, danger has already resulted. It seems, too, that the closing of theaters may have as much educational value as their use for direct educational purposes, etc. Discrimination as to closing among theaters, movies, etc., on the basis of efficiency of ventilation and general sanitation may be feasible.

Saloons, etc.: The closing of saloons and other drinking places should be decided on the basis of the probability of spread of the disease through drinking utensils and the conditions of crowding.

Dance Halls, etc.: The closing of dance halls, bowling rooms, billiard parlors and slot-machine parlors, etc., should be made effective in all cases where their operation causes considerable personal contact and crowding.

Street Cars, etc.: Ventilation and cleanliness should be insisted on in all transportation facilities. Overcrowding should be discouraged. A staggering of opening and closing hours in stores and factories to prevent overcrowding of transportation facilities may be cautiously experimented with. In small communities where it is feasible for persons to walk to their work it is better to discontinue the service of local transportation facilities.

Funerals: Public funerals and accessory funeral functions should be prohibited, being unnecessary assemblies in limited quarters, increasing contacts and possible sources of infection.

4. *Masks.*—The wearing of proper masks in a proper manner should be made compulsory in hospitals and for all who are directly exposed to infection. It should be made compulsory for barbers, dentists, etc. The evidence before the committee as to beneficial results consequent on the enforced wearing of masks by the entire population at all times was contradictory, and it has not encouraged the committee to suggest the general adoption of the practice. Persons who desire to wear masks, however, in their own interests, should be instructed as to how to make and wear proper masks, and encouraged to do so.

5. *Isolation.*—The isolation of patients suffering from influenza should be practiced. In cases of unreasonable carelessness, it should be legally enforced most rigidly.

6. *Placarding.*—In cases of unreasonable carelessness and disregard of the public interests, placarding should be enforced.

7. *Hospitalization.*—The theory of complete hospitalization is that, if all the sick were hospitalized, the disease would be controlled. In certain somewhat small communities where hospitalization of all cases was promptly inaugurated, the disease did come quickly under control. It must be recognized, however, that unless every infective person can be detected and identified as such and removed to the hospital before he has infected others, hospitalization cannot be depended on to eliminate the disease.

In general, home treatment is to be advocated where medical, nursing and other necessary facilities are adequate, and where home treatment is not directly contraindicated by the danger of infecting others. The hospitalization in any case, mild or severe, should be undertaken only when facilities for home treatment are inadequate with respect to medical and nursing care or otherwise. The objection to routine hospitalization of mild cases lies in the fact that patients not already suffering from secondary infections may acquire them by exposure to hospital cases already so infected. The objection to the routine hospitalization of severe cases lies in the danger to the patient necessarily incident in the transfer from home to the hospital.

8. *Coughing and Sneezing.*—Laws regulating coughing and sneezing seem to be desirable for educational and practical results.

9. *Terminal Disinfection.*—Terminal disinfection for influenza has no advantage over cleaning, sunning and airing.

10. *Alcohol.*—The use of alcohol serves no preventive purpose.

11. *Sprays and Gargles.*—Sprays and gargles do not protect the nose and throat from infection, for the following reasons:

(*a*) So far as the knowledge of the committee extends, no germicide strong enough to destroy infective organisms can be applied to the nose and throat without at the same time injuring the mucous membranes.

(*b*) Irrigation of the nose and throat to accomplish the complete mechanical removal of the infective organism is impracticable.

(*c*) Their use tends to remove the protective mucus, to spread the infection and to increase the liability of actual entrance of the infective organisms.

(*d*) Their domestic use is liable to lead in families to a common employment of the same utensils.

(*e*) The futility of sprays and gargles has been demonstrated with respect to certain known organisms, such as the diphtheria bacillus and the meningococcus.

MISCELLANEOUS CONSIDERATIONS

1. Colleges, asylums and similar establishments may with advantage enforce rigid institutional quarantine against the outside world, if they begin in the early stage of an epidemic, provided they are so located and conducted as to render the procedure reasonably likely to be effective, even temporarily; for even temporary success will postpone the appearance of the disease, if it appears at all, to a time when the patients will be more likely to be able to have adequate medical and nursing care.

2. The recommended measures for control, even if they do not accomplish the desired end, should at least be instrumental in distributing the epidemic over a longer period of time, which in itself is highly desirable.

The statistics of the disease and the keeping of proper records are extremely important. The lack of knowledge regarding innumerable factors in reference to the disease makes all the more desirable complete case records, etc.

4. The committee wishes to emphasize the need for the complete statistical study of the collected data on the mortality, morbidity, case fatality, duration, economic aspects, and therapeutics of the disease. Through the collection of the facts in a uniform manner, and through the analysis of such tabulated data, especially mathematical graduation, and testing and study of the figures, important contributions to the natural history and typical characters of the disease may be expected. General principles as to the etiology,

fatality and practical management of influenza may follow from the extensive survey of the epidemic in the statistical laboratory as well as from the intensive bedside observation of single cases of the disease.

5. The measures recommended are calculated to be effective in the promotion of respiratory hygiene in general and particularly in the control of pneumonia and other respiratory infections.

ADMINISTRATIVE MEASURES FOR RELIEF

The committee on administrative measures for relief would submit the following considerations as constituting a summary of the important measures for meeting epidemic conditions:

I. *General Rules.*—1. Reporting should be made compulsory.

2. Isolation, by cooperation and education, should be practiced to a point where it does not diminish the willingness of the physician to report.

3. Placarding would seem to be subject to the same limitations as is isolation.

4. The closing of schools, prohibition of funerals, etc., being preventive measures, are not touched on in this report, except to mention that the closing of many agencies will release medical, nursing and volunteer services for special influenza work.

5. It may be necessary to grant authority and power to the health authorities to administer relief.

II. *Preliminary Measures.*—1. The listing and distribution of resources, including physicians, nurses, social workers, nurses' aids, clerks, domestics, laundresses, automobiles, chauffeurs, mask makers and volunteers of all kinds should be undertaken.

All available publicity channels should be used to promote volunteer service.

An appeal should be made for voluntary donors of human blood serum from convalescent influenza patients, to be held in readiness for use in treatment.

2. Resources should be centralized under one control, with central and branch headquarters, the city being districted for medical, nursing and other work.

The central headquarters should be ordinarily under the supervision of a board representative of the most important agencies concerned, the board's work to be administered through a manager (presumably the health officer) selected for his fitness.

3. The service should be maintained on a twenty-four hour basis, and a system of outgoing and incoming telephone service is essential.

4. The local authorities should get and keep in touch with state and national agencies.

III. *Current and Continuous Analysis of Case Situation.*—In the smaller communities a canvass should be made of all physicians, soliciting information as follows:

(*a*) Number of cases under care.
(*b*) Number of cases needing hospital treatment.
(*c*) Number of cases needing home nursing care.
(*d*) Number of cases requesting medical service but not reached.

This information will indicate the situation as regards the need for emergency nursing and medical service, and should be acquired as fully as possible in larger communities, through various agencies, such as a current lay or police canvass of homes, etc. The continuous classification of cases according to these groupings is of practical value.

IV. *Analysis, Augmentation and Organization of Principal Facilities.*—(A) Field Nursing: 1. Ordinarily nursing facilities utilized in general public health work should be diverted to meet the epidemic situation, and should be used on a district basis, with all other available facilities, under one supervision.

2. Nursing assistants, volunteers and the like should be used whenever possible in homes and institutions, under expert supervision, after classification and assignment on a basis of minimum standards as to fitness, and such intensive training in the care of influenza and pneumonia patients as may be feasible.

3. From the standpoint of the patient, home treatment is to be advocated, if medical, nursing, disease prevention and other facilities are adequate.

4. Restriction so far as possible through the pressure of public opinion should be brought against the unnecessary use of private nurses.

5. Automobile transportation should be provided, and the nursing service used to encourage isolation and education.

6. Special record forms are essential for this and the medical work, and a special subcommittee is proposed to meet this problem.

7. Provision as to housing and care should be made for out of town nurses.

8. We recommend further training with reference to influenza for all graduates of Red Cross home nursing courses and more extensive use of their services. This would necessitate frequent and careful registration (names, addresses and telephone numbers) and further information regarding personal health, age and ability and willingness to serve.

(B) Emergency Medical Service: 1. The medical service should be handled through the central office, the physicians being responsible to the central office, though perhaps assigned to district offices.

2. In this emergency service there should be utilized all available physicians, such as school and factory physicians, volunteers, practitioners on a paid basis, and fourth year medical students. This service should cover all calls reported as unreached by private physicians or received through other channels, and should be coordinated with the special nursing service, being provided with automobile transportation, machines being hired if necessary.

3. The emergency medical service should be used to select cases needing hospital care.

4. It may be feasible to institute a central clearing house in certain districts for private physicians' calls.

5. An arrangement should be made through the medical licensing board for the granting of temporary permits to practice to reputable physicians from out of the state, at the request of the Central Influenza Committee.

6. In some localities it may be feasible to district the local practitioner and to have him meet special calls on a part time basis for adequate compensation.

7. Certain of the relatively nonessential specialties should be discouraged and the physicians in those specialties urged to volunteer for emergency district work. This type of service may be operated on a pay or free basis.

8. Presumably some effort should be made, through an authoritative medical commission, to suggest standard methods of treatment and wise limitations as to therapeutic procedure.

(C) Hospital Facilities: 1. It is essential that the facilities, if possible, be kept ahead of the demand. A daily canvass should be made and data collected regarding available beds, medical and nursing needs, domestics, food, cots, supplies, etc. A regular visit by an inspector will probably prove more effective than an attempt at telephone communication.

2. Under most conditions a central clearing house, covering most if not all of the hospitals, is advisable for the admission of cases. Through this channel the severer cases may receive first consideration. Owing to constant changes in the hospital bed situation, the daily canvass of facilities may not be wholly depended on; on the contrary, it may usually be necessary to telephone the hospital in order to make sure regarding the admission of a particular case. In any event the hospitals, if facilities are inadequate, should be impressed with the necessity for admitting only the most severe or needy cases, pay or free. Special hospital arrangements should be provided for pregnant women.

3. It is advisable to add wards or tents or new equipment to existing institutions rather to establish entirely new emergency hospitals. If practicable, certain hospitals may be urged to handle influenza cases exclusively.

4. Nonemergency surgical and chronic medical cases amenable to home treatment should be dehospitalized.

5. A convalescent home, if adjacent to the hospital, may serve for the care of mild and convalescent cases, thereby increasing the space in the hospital for acute cases, obviously involving an increase in the nursing facilities.

6. A canvass of ambulance facilities should be made, ambulances being requisitioned with payment, or hired by contract, if necessary. Automobiles and motor trucks should be potentially mobilized for this purpose. Frequently military equipment may be used if accessible.

V. Social and Relief Measures: 1. The central office should keep the family advised regarding the patient, thereby saving telephone calls, trolley fares and worry on the part of the family, and thereby increasing the willingness for hospitalization.

2. Volunteer workers, such as Red Cross volunteers, teachers and relatives, should be placed in care of families in which the responsible members are dead or hospitalized, this service being under expert social supervision, and the families in touch with the supply system. Supervision of placed-out children is also necessary.

3. Homes should be investigated before patients are discharged into them, when destitution or other untoward circumstances are apparent.

4. Precaution should be taken that institutions and families too busy with the influenza situation to look after their own needs are covered by the general relief measures.

5. Ordinary charitable relief should be handled through the routine agencies, and the service coordinated with the other epidemiologic measures. Churches, lodges, etc., should be urged to handle their own cases, in order to relieve the pressure on the central agency. Aid should be immediate, without protracted investigation.

6. Recreation facilities (motoring, etc.) should be provided for the physicians and nurses while off duty.

VI. Food: 1. Available central cooking facilities should be used so far as is necessary, such as the dietetic equipment in high schools, normal schools, colleges, etc., with a delivery system to families and institutions in need.

2. Individual families should be encouraged to cook additional amounts, these to be delivered to central diet kitchens for distribution, a standard list of prepared foods needed being devised and advertised, with recognition of racial customs and preferences.

3. It may be necessary to establish canteens in sections of the city.

VII. Laundry: 1. A special collection and distribution system may be essential both for homes and for institutions.

2. It may be necessary to take over a public laundry with compensation, or a private nonmedical institution laundry.

VIII. Provision for Fatalities: 1. Death reporting should be prompt (twenty-four hours) and a record kept so as to insure prompt disposal of bodies.

2. A daily canvass of available coffins should be made, labor assured for construction, and possibly no coffins sold without the permit of the influenza administration office.

3. If morgue facilities are inadequate, a central place should be provided, with embalming facilities, for the temporary disposal of bodies.

4. A canvass of hearses should be made and regulations issued prohibiting unnecessarily long hauls, insisting on maximum loads, etc. A central control will prevent unnecessary duplication as to routes, etc.

5. A reserve supply of trucks and automobiles should be at hand for use in various ways in connection with the handling of fatal cases.

6. The number of graves required should be estimated and labor released from public works or secured through other channels (possibly military) for digging. Possibly temporary trench interment may be necessary.

IX. Education, Instruction and Publicity: Literature and special instructions will be necessary on many phases, including the following:

1. Instructions to physicians as to reporting, facilities available, district arrangements, etc.

2. Advice to physicians regarding treatment standards and suggestions.

3. Instructions for families, to be distributed by nurses, physicians, social workers, druggists and others covering the problems of care during the physician's absence.

4. Instructions to the public as to where aid may be secured, to be printed in various languages, and distributed by druggists, displayed in street cars, used in the press, etc.

5. Instructions for families on "What to do till the doctor comes."

6. Instructions to physicians, factory managers, school superintendents and others, urging the necessity for immediate home and bed treatment at the first sign of respiratory disease.

7. Popular literature on the essentials of adequate care, the danger of returning to work too soon, etc. Popular press space is worth paying for, if it cannot be secured otherwise.

8. Popular publicity as to legitimate medical, nursing, undertaker, drug and other charges, to prevent profiteering.

X. Miscellaneous: 1. The cooperation of pharmaceutic agencies should be secured to insure an adequate supply of drugs and druggists.

2. Influenza victims and their families should have "first call" on fuel deliveries.

3. While follow up procedures are not legitimately a factor in the epidemic situation, their consideration is essential to an adequate meeting of the entire problem. This means adequate provision for medical examination and nursing care, relief measures, industrial employment problems, and the follow up of special sequelae, such as cardiac affections and tuberculosis.

4. It is finally suggested that the health department draw up a program based on the foregoing outline, holding it in reserve for future use, if not immediately needed, and modifying the proposal to fit the size and other characteristics of the particular community.

THE BACTERIOLOGY OF THE 1918 EPIDEMIC OF SO-CALLED INFLUENZA

The epidemic disease known as influenza is believed to be due to an undetermined organism which causes an infection that lowers the resistance of the body as a whole, and of the respiratory organs in particular. This allows the invasion of other pathogenic micro-organisms. The most important complicating infections are due to the influenza bacilli, different strains of pneumococci and different varieties of streptococci. Some careful observers regard certain of these organisms as the primary cause.

In each case, one or several of these micro-organisms may be present. In different portions of the country the dominating variety of organism has been found to differ.

VACCINES

Assuming that the cause of the epidemic is an unknown virus, it does not seem possible at present to prevent the primary disease by vaccination with known organisms. Against the secondary infections there would seem to be a theoretical basis for the use of vaccines, and especially for the use of vaccines prepared from organisms responsibe for complications which may differ in various localities at various times. This variable bacterial flora may militate against the practical application of vaccination on a large scale, because it would seem to require frequently repeated vaccinations with the flora that may be encountered. It is impossible at present to evaluate the reports from the use of these vaccines adjusted to meet local conditions. More data obtained under carefully controlled conditions are needed.

Stock vaccines made from the influenza bacillus alone or from other bacteria have been used to a considerable extent. The injections of stock vaccines have seemed to mitigate to some degree some outbreaks of influenza, and also the severity of the complicating infections; but in those instances in which the results of the use of vaccine have been controlled, no appreciable results have been obtained. The fact that the vaccine is usually employed after the epidemic has broken out and is perhaps on a decline, and the fact that an unknown number of people have been exposed, make it very difficult to draw conclusions as to its efficacy.

RECOMMENDATIONS

Your committee recommends that until such time as the efficacy, or the lack of efficacy, of prophylactic vaccination against influenza is established, vaccine, if used, should be employed in a controlled manner, under conditions that will allow a fair comparison of the number of cases and of deaths among the vaccinated and nonvaccinated groups. Particular attention should be directed to securing data as to the period in the epidemic at which vaccinated and nonvaccinated persons developed the disease.

Your committee is of the opinion that the indiscriminate use of stock vaccines against influenza and influenza with pneumonia cannot be recommended.

Nothing in these recommendations should be interpreted as discouraging the use of a pneumococcus stock vaccine against lobar pneumonia.

This epidemic emphasizes the importance of properly equipped laboratories.

HISTORY AND STATISTICS OF THE EPIDEMIC

Your subcommittee wishes to say that in view of the fact that the historical and other data of the epidemic are still in process of collection, no positive statement can be made at the present time on the precise incidence of the disease in the American population. On the basis of the best data available, your subcommittee estimates that there were not less than 400,000 deaths from the disease in the United States during the months of September, October and November, 1918. The major portion of this mortality occurred between the ages of 20 and 40, when human life is of the highest economic importance. We would suggest that this subcommittee be authorized to cooperate with the special committee on statistical study of the epidemic of the section on vital statistics of this association, and that the data collected through the latter special committee be reported through the subcommittee on history and statistics of the epidemic to the general reference committee on the influenza epidemic. Standard forms for purposes of statistical tabulation, analysis and graphic presentation will be submitted in a supplementary report at an early date.

SUGGESTIONS

In view of the probability of recurrences of the disease from time to time during the coming year, health departments are advised to be ready in advance with plans for prevention, which plans shall embody the framework of necessary measures and as much detail as is possible. Laws plainly necessary should be enacted and rules passed now. Emergency funds should be held in reserve or placed in special appropriations, which appropriations can be quickly made available for influenza prevention work.

The probability that as an after-effect of the influenza epidemic there will be an unusually high pneumonia rate for several years should be taken into consideration.

Of measures for the control of the disease, bacteriologic studies as to the nature of the organisms causing the primary infection and as to bacteria associations, new and improved procedures leading to the production and use of effective vaccines and curative serums, and the fresh air treatment of the infected appear to offer most promise.

Catalase and Oxidation.—W. E. Burge reports in *Science*, Aug. 16, 1918, that as the result of investigations in the physiologic laboratory of the University of Illinois, it is determined that physical work and the ingestion of food increase oxidation in the body by stimulating the liver to an increased output of catalase.

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SATURDAY, DECEMBER 21, 1918

A GENTLE REMINDER

A blue slip to be used in remitting subscriptions and dues for Fellowship in the American Medical Association for 1919 is inserted in THE JOURNAL this week. Last week we explained its use under the heading "Practical Economy." The use of this slip by Fellows and subscribers will result in a considerable saving on the cost of sending the customary bills. Over 20,000 subscribers utilized the slip last year, and it is hoped that an even greater number will use it this year. Don't delay! It's the little things in life that count.

FACT AND OPINION ON THE PRESENT EPIDEMIC OF RESPIRATORY DISEASE

The recent meeting of the American Public Health Association in Chicago was devoted largely to the present epidemic of influenza. An abstract of the proceedings of the sessions devoted to this subject appears in this issue of THE JOURNAL. This abstract is not, of course, a verbatim report of the proceedings, but represents that which seems of permanent value, eliminating a large mass of discussion that was argumentative rather than of the nature of scientific evidence. There are certain large phases of the subject on which much evidence was presented leading to what might be expressed as a consensus of opinion. It must be borne in mind that this organization consists primarily of public health officials, though it includes many research workers and physicians engaged in medical practice and investigation.

The discussions relative to the etiology of the present epidemic resolve themselves into the belief that the bacillus of influenza is not the primary etiologic factor, and that the actual cause is as yet unknown. As indicated by present evidence, a coccus, perhaps a pneumococcus of Type IV, or the coccus described by Mathers and others as a green-producing streptococcus, or the diplostreptococcus described by numerous investigators abroad, seems to have impressed many as of importance in causing death. It seems reasonable to suspect that perhaps these observations all may refer to the same organism or to closely related organisms; but sufficient work has not yet been done with this organism to prove a definite etiologic relation to the epidemic. The reports, however, indicate that such organisms are found in a large majority of the cases of the disease, especially in those resulting fatally, and that if they are not the primary etiologic factors, they seem to bear a definite relationship to the complicating pneumonia and the resulting mortality.

A second point of elaborate discussion in the proceedings concerned the use of the face mask as a means of prevention. Arguments were made for and against the use of this mask. Most of those who took part in the discussion seemed to lose sight of the fact that definite evidence has been presented to show that the wearing of a face mask prevents the diffusion of pathogenic organisms of which we have definite knowledge. If a person coughs toward a plate of medium exposed at a certain distance from the mouth and nose, a large number of colonies of bacteria develop on the plate. If the same person provides himself with an adequate face mask and coughs toward the plate, the organisms do not appear and grow on the plate. This is a simple experiment which any investigator may easily demonstrate for himself. The organisms found on the plates are, in many cases, bacteria similar to those found in the lungs of persons dying in the present epidemic. There is reason to believe that a face mask properly worn will aid in the prevention of infection from these organisms. There is also evidence to the effect that face masks, properly worn and controlled, have prevented the spread of the epidemic in certain institutions, whereas it spread rapidly in other institutions where the face mask was not worn. While not conclusive, this evidence leads to the opinion that, properly used, the face mask has value in the prophylaxis of influenza. Whether or not it is worth while to attempt to mask entire communities, either small villages of a few hundred or a few thousand inhabitants or large municipalities, such as San Francisco, compelling all of the persons in the municipality to wear the mask in public over an extended period of time, there is grave doubt as to whether this procedure can be sufficiently controlled to make it of practical value. Not that the public does not cooperate fully with the health department in its effort, but that the efficiency of the cooperation cannot be made sufficiently perfect.

Incidentally, a paper presented by Lieutenant-Colonel Cummings of Newport News, Va., indicated to the satisfaction of most listeners that a significant factor in the spread of infection in Army camps was the inadequate washing of mess kits. Cummings was strongly imbued with the belief that hand to mouth infection was more important than mouth to mouth or, rather, face to face, infection. It was his belief that a

special value attaches to the face mask in aiding in the prevention of hand to mouth infection.

Another greatly debated point concerned the use of prophylactic vaccines. As we have stated before, these vaccines are at present of two main types. One is a vaccine composed of various strains of the influenza bacillus, the other a mixed vaccine containing the various types of pneumococci, also streptococci, influenza bacilli and staphylococci. Both types have been given extensive trial, unfortunately, however, except in a few cases, without adequate scientific control. The indiscriminate vaccination of the population, vaccinating those who come and not vaccinating others, without keeping adequate records of both, can hardly yield evidence worthy of consideration for or against the use of vaccines as a prophylactic measure. We recently[1] pointed out that the use of the vaccines was wholly in the experimental stage. Since that time reports have appeared of definite, adequately controlled experiments with each of these vaccines. These indicate that this use is at best still in the experimental stage, and that these vaccines are probably not efficacious in the prophylaxis of influenza. It is well to repeat here that the question as to whether or not these vaccines are efficacious cannot be settled by argument as to the theory of their use or by statement of opinion. The question is one that is susceptible of scientific proof.

SCURVY AND CONSTIPATION

In view of the departures from the customary character of the diet that are impending or already in operation to a large extent among the civil population, as well as among the armies of the world, it is fortunate that scurvy has again become the subject of extensive scientific investigation. This disease is admittedly associated with alterations in the diet, and commonly has manifested itself prominently when certain extensive changes in the usual rations have been necessitated by force of altered food conditions. We have recently referred to some of the conflicting views regarding scurvy, particularly as they are elucidated by modern experience with antiscorbutic methods.[2] The symposium on diseases due to deficiencies in nutrition—an important feature of the session of the American Medical Association last June—helped to secure the formulation of the debated points of view.[3]

We must revert here to the theory of McCollum, which has been widely quoted of late. As he was unable to maintain guinea-pigs—the classic animal for the study of experimental scurvy—in health on a diet of oats and milk, from which he asserts that nothing is lacking for the adequate nutrition of rats and swine, McCollum believes that the physical texture rather than the chemical make-up of the scorbutic diet must be at fault. As he develops his view, the guinea-pig ordinarily thrives only on diets that contain a succulent vegetable, since its cecum becomes packed with feces on diets that are unsuited to its digestive tract. The cecum in this species is very large and delicate, and such a constipating diet as oats and milk causes malnutrition because of the physical properties of the feces that are formed from it, rather than because of a lack of any antiscorbutic substance.

The investigations of Cohen and Mendel[4] at Yale University are not in harmony with the belief that intestinal stasis is the sole predisposing factor in the production of scurvy or that the action of well known antiscorbutics can be explained as due to their laxative effects. For example, in the case of certain selected diets a small amount of milk ingested daily permitted the onset of symptoms of scurvy, while larger quantities, which were not less constipating, caused the scorbutic symptoms to disappear. Moreover, aids to the ready elimination of feces, like differing amounts and kinds of roughage, caused no corresponding change in the course of the disease. The Yale investigators conclude that roughage in the diet plays, if anything, a minor accessory rôle in the prevention of scurvy. This disease is not essentially dependent on constipation as a causative factor, though the latter may aggravate the symptoms.

Hess has expressed himself in a similar vein:

> Observations of many cases of infantile scurvy have convinced us that constipation plays no essential rôle in this disease. In reviewing the many cases that we have seen we find that the infants were not constipated to a greater degree than normal babies, and that the disorder bore no parallel relationship to the activity of the bowels. Furthermore, as brought out in a recent paper, potato, which is a sovereign remedy for scurvy, is not a laxative, and malt soup preparations, which most readily lead to this disorder, are rather laxative than constipating. To this evidence may be added a recent experience that infantile scurvy does not yield to treatment by liquid petrolatum, but that its symptoms are rapidly alleviated by small additions of orange juice to the dietary, so small as to be without apparent effect on the bowels.

The accord between the English investigators, Chick, Hume and Skelton,[5] and the American workers just quoted serves to keep scurvy for the present in the domain of diseases due to deficiencies of nutrition, and gives renewed significance to the careful study of antiscorbutic agents. For, as Hess[3] has remarked, if the protective or curative values of antiscorbutic foods are, as McCollum and Pitz have recently contended, merely dependent on their laxative properties, and interchangeable with laxatives, such as liquid petrolatum or phenolphthalein, then scurvy is in no sense whatsoever due to food deficiency.

1. Serums and Vaccines in Influenza, editorial, THE JOURNAL A. M. A., Oct. 26, 1918, p. 1408.
2. Scurvy and Antiscorbutics, editorial, THE JOURNAL A. M. A., Dec. 14, 1918, p. 2000.
3. McCollum, E. V.: The "Vitamin" Hypothesis and the Diseases Referable to Faulty Diet, THE JOURNAL A. M. A., Sept. 21, 1918, p. 937. Hess, A. F.: The Rôle of Antiscorbutics in Our Dietary, ibid., p. 941.
4. Cohen, B., and Mendel, L. B.: Experimental Scurvy of the Guinea-Pig in Relation to the Diet, Jour. Biol. Chem., 1918, **35**, 425.
5. Chick, H.; Hume, E. M., and Skelton, R. F.: The Antiscorbutic Value of Cow's Milk, Biochem. Jour., 1918, **12**, 131.

THE RELATION OF SANITATION AND DRAINAGE TO MALARIA

In the scheme of disease prevention, sanitation is an essential factor; and in no disease has this been more decisively established than in malaria. Malaria flourishes chiefly in tropical or semitropical climates where drainage is defective, and consequently where conditions are propitious for the breeding of mosquitoes. The campaigns in eastern Europe have afforded excellent opportunities for emphasizing the force of this statement. In the Struma and Vardar valleys, consisting of marshy lands in which mosquitoes abound, malaria was extremely prevalent. Entente armies have been stationed there for years. The reclamation and drainage undertakings set in motion by British and French engineers have had the result already of destroying many of the mosquito breeding haunts and have decreased the prevalence of malaria. When the drainage plans have been completely carried out, these regions, which have been practically uninhabited for generations, will again become fruitful tracts of land able to support a large population.

Another conspicuous instance of the good effects of drainage and sanitation is provided by the island of Cyprus.[1] In 1878 malaria was so prevalent in this island that it was referred to as a "hotbed of malaria," and troops were withdrawn from the island. Antimalarial measures were inaugurated there in 1913 by Sir Ronald Ross. These measures included drainage, the clearance of land by cutting grass, and the stocking of tanks with goldfish. During this war both troops and prisoners have been quartered there, and yet no primary cases of malarial infection have occurred among the prisoners, while the incidence rate of malaria among the troops has been 0.4 per cent. Assistant Surgeon-General H. R. Carter has pointed out[2] that mosquitoes will breed freely in wild celery, which grows in water varying from 2½ to 6 feet in depth, and in lotus beds where the leaves of the plant have fallen into the water and adhered together as they decay. The water hyacinth, *Eichhornia crassipes*, although a highly ornamental plant, provides one of the most frequent means of shelter for the mosquito. In the Madras Presidency an outbreak of malaria was due to the fact that the plant afforded a convenient refuge to mosquitoes.

A problem of a similar nature confronted Colonel Truby, M. C., U. S. Army, who, in his annual report as chief medical officer of the health department of the Panama Canal, stated that the water lettuce, *Pistia stratiotes*, gives shelter to *Mansonia titillans*, and that additional studies will be carried on from time to time with the view of discovering an economical and practical method of eradicating the plant and its associated mosquito. If malaria were extirpated, as it is possible for it to be extirpated, the tropics would lose a great deal of their unhealthfulness for white people.

Sanitation, agriculture and economics are inextricably bound together, and the war, in the instances of Mesopotamia and Greece, has once again brought into prominence the fact that drainage and other obvious sanitary measures will abolish the mosquito and render the tropical and subtropical zones sufficiently healthful for the white man. Thus we may reasonably hope that the time is not far distant when the wonderfully fruitful soil of tropical climates may be cultivated and made useful in the support of humankind.

1. Trop. Dis. Bull., Oct. 15, 1918, p. 233.
2. Carter, H. R.: Breeding of Anopheles Quadrimaculatus in Deep Water and at a Distance from Shore, Pub. Health Rep., 1918, **33**, 571.

THE UTILIZATION OF CALCIUM AND SOME OTHER ELEMENTS IN CERTAIN VEGETABLES

"It is not difficult," the Food Guide of the United States Food Administration tells us, "to understand why vegetables and fruits are so important. Only a few are especially valuable as fuel or as a source of protein, but almost all are high in mineral salts and can supply the 'roughage' desirable in the diet. Some also contain the vitamins, the leafy vegetables being especially valuable because, like milk, they contain the two kinds. The 'green,' leafy vegetables, like spinach, cabbage, Brussels sprouts, asparagus and lettuce, are the ones that help most in these last ways—'protective foods,' they have been called. They are rich in the iron, calcium and other minerals that some of the other foods lack. The use of plenty of these vegetables should go far toward keeping up health."[1]

Hasty generalizations of this sort, helpful as they may be, are liable to include much that is conjecture or derived from reasoning by analogy. It is the duty of the contemporary science of nutrition to check up every pronouncement of fundamental scope so far as it is not already firmly established on the bed rock of experimental observation. On one aspect of the use of certain vegetables in the dietary, recent investigations have shed some light. In infant nutrition, suitable plant products, such as carrots and spinach, have come more and more into dietary vogue within the past two decades. It is understood that they are comparatively rich in calcium, an element essential to the nutrition of growth, found at best in small quantities in cereals and flesh products, but abundant in milk. The value of these green vegetables has been attributed in part to their effect on the mineral metabolism.[2] McClugage and Mendel[3] of the Yale Labora-

1. Food Guide for War Service at Home, prepared under the direction of the United States Food Administration, New York, Charles Scribner's Sons, 1918.
2. Courtney, A. M.; Fales, H. L., and Bartlett, F. H.: Some Analyses of Vegetables, Showing the Effect of the Method of Cooking, Am. Jour. Dis. Child., July, 1917, p. 34.
3. McClugage, H. B., and Mendel, L. B.: Experiments on the Utilization of Nitrogen, Calcium and Magnesium in Diets Containing Carrots and Spinach, Jour. Biol. Chem., 1918, **35**, 345.

tory of Physiological Chemistry have specially investigated the relative availability of the calcium of carrots and spinach in the animal economy. Their results show that when these vegetables were added to the diets of animals the calcium was not so well utilized as is the calcium in milk or in calcium carbonate. Hence McClugage and Mendel arrive at the deduction that so far as calcium is concerned, if milk were not available, the addition of a suitable calcium salt would be quite as rational a procedure as a vegetable addition. Furthermore, in order to add to the diet an appreciable amount of calcium from a vegetable source, it would be necessary to feed large quantities of the vegetables, which in itself is a rather difficult procedure in the case of infants.

As the Yale investigators remind us, this outcome does not speak in any way against the vegetables as sources of vitamins, iron or other dietary factors. The implied warning is that it may be an unsafe procedure to use vegetables extensively as a dietary substitute for milk in the nutrition of children unless they respond to these foods differently from the laboratory animals on which experiments were made. It is always wise to be prepared to meet the contentions of the faddist, who is likely to see only advantages and be blind to the shortcomings of his preferred practices.

Current Comment

THE HEALTH OF THE NAVY

The annual report of the Surgeon-General of the Navy, covering the fiscal year 1918, has just been received. Under present circumstances it is a more interesting and human document than in normal times of peace. The rapid expansion in the personnel of the Navy during the war included enlargement of the Medical Corps to over 3,000 officers, this enlargement following the widening of the Navy's entire sphere of activity. The activities, as pointed out by Surgeon-General Braisted, included the establishment of hospitals abroad, care of the battleship fleet, medical personnel for the marines and the manning of three hospital ships, and finally, the care of the great inland training station, as well as of several training stations situated on the coasts. The health of the Navy has been excellent, affected only by epidemics which have seized the community in general. The general admission rate for the entire Navy for all causes—disease, injuries and casualties—during the six months from Jan. 1 to June 30, 1918, is 716.50 per thousand per year as compared with the average annual rate of 624.23 for the eight peace years from 1909 to 1916. The annual death rate for disease for the six month period was 5.9 per thousand as compared with 2.7 for the ten year period from 1907 to 1916. It is pointed out that this record is related to the severe weather conditions of last winter so that the death rate for disease during the first three months was 8.9 and for the second three months, 3.3—a figure approaching the average for peace times. The work of all the different departments of the Naval Medical Corps is described in detail, as well as the sanitation of individual ships and stations. Special reports are devoted to the various diseases that have been prevalent, as cerebrospinal meningitis, the pneumonias and measles. In discussing the venereal diseases, it is pointed out that the figures now obtainable from men examined for induction into the Army under the selective draft indicate that the percentage of men in either the Army or the Navy infected with venereal disease is lower year after year than the percentage of males of corresponding ages in civil life. The records for 1918, while higher than for 1917, are nevertheless much lower than for the previous eight or nine years. This report is of especial interest to those studying sanitation problems of military forces.

WHY NOT ISOLATION AND QUARANTINE?

The present epidemic of so-called influenza is as contagious, and certainly as fatal, as smallpox, scarlet fever or measles. While we know little of its etiology or mode of transmission, we know as much of these two factors in this disease as we know of the same factors in the three other diseases mentioned. There is reason to believe that all four spread by contact—from man to man. When smallpox, scarlet fever or measles is prevalent, rigid isolation and quarantine are enforced, and it is quite certain with at least a fair measure of success. Should not the same methods of prevention be more vigorously adopted in the present epidemic? When it is realized that already from one fourth to one third of the population of this country has been subject to the disease, that more than 300,000 persons have died as a result of the infection, the suggestion that every case of influenza be isolated and that quarantine against these cases be rigidly enforced is worthy of serious consideration.

A BACTERIAL FACTOR IN AUTOINTOXICATION

Before the complex of uncertainties vaguely described as gastro-intestinal autointoxication can be intelligently unraveled and understood, it will be necessary to know far more than is at present appreciated regarding the manifold factors involved. Although some would limit the use of the term "autointoxication" to poisoning with products of cellular metabolism, it is practically impossible at present to separate this eventuality from the effects that may be traceable to the absorption of toxic products formed by putrefaction within the alimentary canal or introduced into it with the ingested food. Judging by the fact that transformation products of phenol are almost always present in the urine, we may properly assume that this aromatic compound is a common product of the bacterial disintegration of proteins in the gastrointestinal tract, even if it be admitted that a small amount may be of endogenous origin.[1] In cases of

1. Moore, C. U.: The Phenol Excretion in the Urine of Infants, Including the New-Born, Am. Jour. Dis. Child., January, 1917, p. 15.

ileocecal fistula in which the food residues do not delay in the large intestine, phenol derivatives are usually absent from the urine. Furthermore, in the few reported classic instances of animals kept alive without bacteria, the same failure of phenol production has been reported.[2] The immediate precursors of phenol are assumed to be the aromatic amino-acids tyrosin and, perhaps, phenylalanin, both of which are obtained as familiar digestion products of proteins. The question as to the micro-organisms specifically responsible for the reactions involved has remained more uncertain. Indol formation, another phenomenon long defined as a characteristic feature of autointoxication and for which the tryptophan group in the protein molecule is essential, has been attributed to the *Bacillus coli* group so abundantly found in feces. Recent studies by Rhein[3] at the Hygienic Institute in Posen have led him to conclude that the familiar production of phenol in the human alimentary canal is due to a special race or type of *B. coli* designated as *B. coli-phenologenes*. It is characterized by failure to form indol. If this conclusion is further substantiated, the observation will serve to add another fact of definite character with the help of which the complete story of autointoxication can perhaps ultimately be written.

THE PSYCHOLOGY OF THE HEALTH OFFICER

An unbiased observer after listening to the discussions concerning influenza at the session of the American Public Health Association would come to the conclusion that some of those present were concerned largely with justifying their course of action during the epidemic; in other words, that they had not come with an open mind. Argument after argument was made on the basis of broad generalization or of unverifiable statistics. This is especially to be regretted because most of the points under discussion concerned questions susceptible of scientific proof. None of the health officers need to apologize for what they have done or left undone. The prophylaxis and treatment of this disease on a scientific basis depend on an accurate knowledge of its etiology and epidemiology. But the etiology of the epidemic is unknown, and its mode of transmission is unknown. Health officers had no guide of action and, by the very nature of things, could not have such a guide as long as our knowledge of the disease is as meager as it is. All had done what they thought was for the best; this was indicated by the spirit of the meetings and the discussions. These showed that the health officers of the states and of the large and small communities realized their responsibility and were more than anxious to do the right thing.

2. Nuttall, G. F., and Thierfelder, H.: Ztschr. f. physiol. Chem., 1896, **22**, 62.
3. Rhein, M.: Ueber die Bildung von Phenol im menschlichen Darm, Biochem. Ztschr., 1917, **84**, 246.

Stammering.—Treatment rests on the principle of educated self-control. Concrete application of this principle is directed, first, toward conscious control of the peripheral speech mechanism, and, second, toward direct control of the emotional and nervous disturbance.—E. L. Kenyon.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 13, there were in the Medical Corps 31,045 officers, a decrease of fifty-nine since the previous week. This personnel includes four major-generals, five brigadier-generals, 219 colonels, 513 lieutenant-colonels, 2,487 majors, 10,098 captains and 17,719 lieutenants. There were in active service 30,222, a decrease of 157 since the previous week. Discharges to date include 4,148 officers.

Medical Division of the Provost-Marshal's Office Disbanded

The Medical Division of the Provost-Marshal's Office is being disbanded. Lieut.-Col. Hubert Work and Capt. D. Chester Brown have received honorable discharges and have returned to their homes. Col. F. R. Keefer will shortly return to service with the regular Medical Corps.

Colonel G. L. Edie Recommended for Promotion

Colonel Guy L. Edie of the Army Medical Corps, at present chief surgeon at Base Section No. 5, services of supply, France, has, it is reported, been recommended for promotion to the rank of brigadier-general by Gen. George H. Harries, commanding general of the base. In making this recommendation General Harries says:

> It would be impossible to fairly set forth, within the limits of such a communication as this, the many reasons why Colonel Edie is deserving of recognition. In a situation where difficulties mounted so high and advanced so swiftly that they seemed at times to be almost overwhelming he accomplished greatly. Despite the lack of medical personnel and the construction which he strove to secure, he never approached failure. Especially was he supremely successful during the epidemic of influenza-pneumonia, which came to us on transports; for the service he then rendered the Army owes him more than it can ever pay. An officer of rich experience, mature judgment and keen initiative, he has earned much more than I now recommend be given to him.

Extracts from Weekly Bulletin A. E. F., No. 32
Nov. 18, 1918

This bulletin calls attention to the necessity for continued warfare against disease in the A. E. F., and points out that the job is 99 per cent. prevention of disease. Special attention again is called to the necessity of plenty of fresh air in disease prophylaxis. The weekly report of disease indicates that diphtheria again shows an excessive rate, the cases being reported widely from the A. E. F., especially concentration of cases occurring at hospital centers. It is said that many of the cases are secondary cases developing within the hospital and among the hospital personnel. Good aseptic ward technic and the conscientious wearing of masks it is believed will prevent much of the secondary infections.

A warning is issued to troops not to open boxes which the enemy has left behind in certain regions. These wooden boxes bear the inscription "Vorsicht! Infectiöse Materiel."

An Item for the Sports Department

In the final battle of the season the Camp Greenleaf football eleven defeated the eleven from Camp Dix by a score of 34 to 0. The Camp Greenleaf team was entirely medical, trained by doctors and composed of the enlisted men of the medical department. According to Washington papers, the Camp Greenleaf eleven thus become the Army football champions of 1918.

Decorated for Bravery

Decorations for bravery in action have been conferred on the following medical officers of the American Expeditionary Forces: Capt. Earl V. Morrow, M. C., U. S. Army, Portland, Ore.; Capt. George P. O'Malley, M. C., U. S. Army, Cleveland, on duty with a British unit, the distinguished service medal by the British government for bravery in rescuing wounded under fire; Lieut. Frank H. McGregor, M. C., U. S. Army, Mangum, Okla., awarded a medal for bravery by the British forces; Ernest C. Rowland, Allentown, Pa., an American Army ambulance driver serving with the French army, although wounded by shell fragments, stuck to

his post and delivered the wounded under his care to the hospital, has been awarded the Medaille Militaire and Croix de Guerre with palms.

Prisoners

It is reported that Lieut. Henry L. Rothman, M. C., U. S. Army, Washington, Mo., is a prisoner in Germany.—It is reported that Capt. Benjamin P. Burpee, M. C., U. S. Army, Manchester, N. H., is a prisoner in Camp Villingen, Germany, and is in good health.

Medical Officers Gassed

It is reported that the following medical officers on duty with the American Expeditionary Forces in France are suffering from having been gassed: Lieut. Robert H. Breslin, M. C., U. S. Army, Providence, R. I., on duty with the 103d Infantry; Lieut. Eugene H. McCaffery, M. C., U. S. Army, Sprague, Wash.; Capt. Fred A. Lieuallen, M. C., U. S. Army, Portland, Ore.; Major Philip G. Cole, M. C., U. S. Army, Helena, Mont.; James P. H. Ruddy, Scranton, Pa., and Lieut. Walter T. Bronson, Pueblo, Colo.

Wounded

The following medical officers are reported to have been wounded: Lieut. Bernard Bolka, M. C., U. S. Army, Chicago, slightly; Lieut. Sloan A. Brown, M. C., U. S. Army, Corapolis, Pa., slightly; Lieut. Thomas S. Williams, M. C., U. S. Army, Dallas, Texas, severely; Major Frank E. Winter, M. C., U. S. Army, Santa Ana, Calif., severely; Lieut. Herbert G. Hempler, M. C., U. S. Army, Creal Springs, Ill., degree undetermined; Lieut. Samuel J. Benoit, M. C., U. S. Army, Gardner, Mass., degree undetermined; Lieut. Charles C. Ryan, M. C., U. S. Army, Republic, Pa., severely; Lieut. Robert LeRoy Leighton, M. C., U. S. Army, Spring Lake, N. J., slightly; Lieut. J. Armin Stackhouse, M. C., U. S. Army, Ambler, Pa., degree undetermined; Lieut. Lomax Gwathmey, M. C., U. S. Army, Norfolk, Va., degree undetermined; Capt. William S. Horn, M. C., U. S. Army, Fort Worth, Texas, severely; Lieut. Milford Arthur Leach, M. C., U. S. Army, Grand Rapids, Mich., slightly; Lieut. Edward S. Huckins, M. C., U. S. Army, Bay City, Mich., degree undetermined; Lieut. Lloyd E. Wurster, M. C., U. S. Army, Philadelphia, severely.

HONORABLE DISCHARGES AND RESIGNATIONS, MEDICAL CORPS, U. S. ARMY

ALABAMA

Gurley—Graham, B. E.
Montgomery—Salter, P. P.

ARIZONA

Nogales—Gustetter, A. L.

ARKANSAS

Hoxie—Stidham, J. H.

CALIFORNIA

Los Angeles—Chambers, W. J.
Pasadena—Smith, S. L. I.
San Francisco—Fish, J. B.
Wagner, H. L.
Wilcox, R. W.
Santa Cruz—Hosford, W. J.
Tulare—Puller, R. N.

COLORADO

Colorado Springs—Swan, W. H.
Denver—Allen, J. H.
Gorsuch, J. C.
Holden, G. W.
Lewis, R.
Idaho Springs—Morehouse, J. A.

CONNECTICUT

Bridgeport—Fleck, H. W.
Hartford—Blair, E. H.
Middletown—Coleburn, A. B.
New Haven—Braude, S. H.
Whiting, L. C.

DISTRICT OF COLUMBIA

Washington—Bryan, J. H.

FLORIDA

Arcadia—Edmondson, J. W.
Miami—Jaudon, E. K. J.
Petersburg—Wood, A. J.
Plant City—Alsobrook, J. W.
Tampa—Coon, G. B.

GEORGIA

Acworth—Humphries, W. C.
Ashburn—McKenzie, G. G.
Atkinson—Moody, E. A.
Atlanta—Cromer, J. L.
Daly, R. R.
Columbus—Anderson, J. M.

IDAHO

Nampa—Hull, A. R.

ILLINOIS

Barry—Beavers, C. E.
Bloomington—Sanderson, C. R.
Blue Mound—Moffet, W. T.
Bridgeport—Schrader, J. F.
Champaign—Hoffman, J. N.
Chicago—Dorland, W. A. N.
Fuller, W.
Keyes, A. B.
Linnell, B.
Magnuson, P. B.
McCahill, M.
McKenna, H.
Meyers, C. K.
Miller, H. C.
Reinhart, M. D.
Sondel, H. M.
Dallas City—Wayland, T. A.
Highland—Meloy, E. S.
Hillsboro—Hamilton, R. A.
Joliet—Cohen, O.
Maywood—Wallingford, W. J.
Milledgeville—Runnels, B.
Oak Forest—Moran, J. M.
Pittsfield—Wells, F. N.
Springfield—Trapp, A. R.
West Chicago—McClura, C. B.
West Point—Bryant, J. R.

INDIANA

Batesville—Samms, M. L.
Ellettsville—Harris, W. W.
Greenfield—Allen, J. L.
Indianapolis—Allen, H. R.
Wheeler, J. T.
LaPorte—Wilcox, F. T.
Logansport—Ballard, C. A.
Muncie—Kirklin, B. R.
North Webster—Druley, G. N.
Peru—Van Mater, G. G.
South Bend—Lenz, E. J.
Terre Haute—Caffee, A. H.
Vincennes—Anderson, R. A.

IOWA

Armstrong—Knipe, J. B.
De Witt—Lyon, M.
Fort Madison—Grimwood, W. H.
Hazelton—Hunt, H. H.

KANSAS

Americus—Brickell, J. B.
Kingsley—Gafford, G. M.
McPherson—Engberg, A.
Soldier—Adams, J. H.

KENTUCKY

Louisville—McKinney, W. T.
Martha—Bailey, O.

LOUISIANA

Caspiana—Stamper, J. R.
Lake Charles—Martin, J. G.
Shreveport—Hunt, R.

MARYLAND

Baltimore—Howland, J.
Shearer, J. P.
Stuart, D. D. V.
Whittle, H. L.
Wislocke, G. B.

MASSACHUSETTS

Boston—Dodge, A. M.
Frothingham, C.
Kelly, J. M.
Lund, F. H.
Treamor, J. P.
Brockton—Fullerton, W. W.
Brookline—Barnes, H. A.
Lawrence—Merrill, W. H.
Waverly—Abbott, E. S.
West Somerville—Pillsbury, E. D.

MICHIGAN

Detroit—Hathaway, J. H.
McAlpine, A.
Holland—Thomas, G. H.
Owosso—Wilson, E. T.

MINNESOTA

Howard Lake—Moffatt, A. G.
Minneapolis—Elliot, J. N.
Owatonna—Stewart, A. B.
St. Paul—Hubert, R. I.
St. Peter—Daniels, J. W.
State Sanatorium—Beach, G. W.

MISSISSIPPI

Meridian—Klein, K. T.

MISSOURI

Cane Hill—Allder, A. E.
Cassville—Bailey, W. T.
Excelsior Springs—Grace, T. W.
Fairview—Russell, S. A.
Grand Pass—Coon, E. H.
Hurricane—Vaughan, S. C.
Kansas City—Deraheimer, G. V.
Jackson, J. D.
Wallerdorf, L. H.
St Louis—Hamel, A. H.
Koensel, A. W.
Paugh, P. G.
Walsh, L. S. N.

MONTANA

Malta—Blankenhorn, C. E.

NEW JERSEY

Grantwood—Brundage, P. E.
Jersey City—Rubacky, J. F.
Palmyra—Voorhis, C. F.
Passaic—Smith, E. W.
Paterson—McDede, F. F.

NEW MEXICO

Rosewell—Presley, T. E.
Tyrone—Davis, E. P.

NEW YORK

Albany—Giffen, J.
Bath—Parkhurst, G. M.
Bedford Hills—Norman, M.
Brooklyn—Ferstler, M. P.
Gusman, F.
Margulies, A. C.
Staub, G. C.
Walther, J. W.
Huntington—Donahue, W. J. A.
Katonah—Noe, P., Jr.
Lockport—Mayne, H. H.
Mount Morris—Leach, A. E.
New York—Allis, J. A.
Banker, G. N.
Berens, P.
Ellis, T. F.
New York—Hyman, S. M.
Kammerer, F.
Kane, A. M.
Kaunitz, J.
Lipsett, F. J.
Pollitzer, S.
Reece, H. B.
Spellman, D. S.
Young, P. G.
Oneonta—Smith, J. C.
Richmond Hills—Parisot, E. H.
Rochester—Hohndorf, J. L.
Koepe, F. H.
Schenectady—Heatly, J. A.
Syracuse—Banford, T. E.
Champlin, P. M.

NORTH CAROLINA

Greensboro—Roberson, G. B.
Highlands—MacPherson, G. S.
Waynesville—Abel, J. F.

NORTH DAKOTA

Fargo—Kaess, A. J.
Lisbon—Patterson, T. C.

OHIO

Athens—Mervin, J. T.
Cincinnati—Fox, A. J.
Jenkins, W.
Cleveland—Bruner, W. E.
Columbiana—Mellon, J. A.
Columbus—Bay, W. F.
Coshocton—Lower, J. D.
Delphos—Wolfe, J.
Elyria—Hart, W. E.
Footoria—Leonard, W.
Fremont—McKenney, S.
Kalida—Watterson, J. D.
Logan—Little, C. E.
Monroeville—Pilkey, B. C.
North Fairfield—MacKintosh, A.
Tiffin—Gosling, J. A.
Toledo—Baldwin, M. G.
Newberg, F. L.

OKLAHOMA

Boswell—McPherson, V. L.
Kingfisher—Pendleton, J. W.

OREGON

Ashland—MacCracken, G.

PENNSYLVANIA

Braddock—Morrow, F.
Carlisle—Spangler, H. A.
Cassville—Hamilton, W. M.
Monessen—Israel, I. J.
Philadelphia—Anderson, H. B.
Bunting, J. T.
Burns, J. P.
Chance, B.
Epstein, A.
Foltz, J. C.
Furbush, C. L.
Pearce, R. M.
Smith, D.
Van Horn, L.
Pittsburgh—Boggs, J. C.
Williams, I.
Pittston—Madden, J. T.
Ridgway—Flynn, J. G.
Sharpesburg—Graham, N. R.
York—Wise, F. E.

SOUTH CAROLINA

Santuck—Jeter, J. T.

SOUTH DAKOTA

Alexandria—Maytum, W. J.
Beresford—Elliott, A. V.

TENNESSEE

Alexandria—Cotten, L. D.
Columbia—Porter, O. J.
Martin—Haley, C. P.
Memphis—Levy, L.

TEXAS

Call—Martin, J. D.
Dallas—Bernard, J. T.
Poulter, J. W.
Fort Davis—Harris, J. M.
Friendship—Hadley, W. A.
Greenville—Cantrell, C. E.
Sequin—Bergfeld, A. W.
Shamrock—McDowell, J. E.
Snyder—Howell, R. L.
Waco—Hale, J. W.

VIRGINIA

Norfolk—Williams, R. L.
Palmer Springs—Harman, W. C.
Salem—Brown, W. E.

WASHINGTON

Everett—Durand, W. S.
Wellpinit—Wise, A. H.

WEST VIRGINIA
Martinsburg—Tonkin, H. G.

WISCONSIN
Milwaukee—Dudley, L. W.
Nashotah—Donnelly, F. J.
Oconomowoc—Wilkinson, M. R.
Rice Lake—Dawson, D. L.
Knapp, E. J.
Stevens Point—Walters, F. A.
Waupun—Taylor, L. L.

WYOMING
Sheridan—Newell, M. A.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut C. E. FARISH, Mobile.

To Camp Logan, Texas, from Fort Oglethorpe, Capt. W. A. SELLERS, Montgomery.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. A. B. PICKERING, Planterville.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. W. H. ANDERSON, Athens.

To Camp Sheridan, Ala., base hospital, for instruction, from Camp Crane, Capts. N. P. COCKE, Birmingham; G. J. WINTHROP, Mobile; from Camp Jackson, Capt. E. M. PRINCE, Birmingham.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Major H. T. LAY, Montgomery.

To Eastview, N. Y., from Fort Oglethorpe, Major J. N. BAKER, Montgomery.

To Fort Des Moines, Iowa, for instruction, from Camp Custer, Major J. M. MASON, Birmingham.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. W. L. THORNTON, Birmingham.

To Hoboken, N. J., from Camp Sevier, Lieut. P. Y. DONALD, Marion Junction.

Arizona

To Fort Logan H. Roots, Ark., for instruction, from Camp Crane, Capt. L. P. KAULL, Jerome.

Arkansas

To Camp Crane, Pa., from Hoboken, Lieut. T. E. SANDERS, Hot Springs.

California

To Camp Beauregard, La., as tuberculosis examiner, from Camp Cody, Lieut. J. Y. BARTHOLOMEW, San Francisco.

To Camp Crane, Pa., from Hoboken, Capt. J. H. TITUS, Ontario. Surgical group, from Camp Kearney, Capt. J. C. ROBERTSON, Modesto.

To Camp Custer, Mich., from Ann Arbor, Lieut. J. de ANGULO, Stanford University.

To Camp Dix, N. J., base hospital, from Camp Crane, Major C. G. TOLAND, Los Angeles.

To Camp Kearney, Calif., from Camp Cody, Lieut W. W. MULVEHILL, Los Angeles.

To Camp Lewis, Wash., from Fort Oglethorpe, Lieut. R. A. SANDS, Ocean Park.

To Camp Meigs, Wash., from Fort Oglethorpe, Lieut. P. L. WISE, San Jose.

To Camp Wadsworth, S. C., base hospital, from Camp Crane, Capt. H. K. FABER, San Francisco.

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. T. C. McCLEAVE, Oakland.

To Colonia, N. Y., from Camp Crane, Lieut. H. W. NIELSEN, Fresno.

To Eastview, N. Y., from Fort Oglethorpe, Capt. A. F. HIGGINS, Sacramento.

To Fort McDowell, Calif., from Camp Fremont, Lieut.-Col. H. H. SHARPE.

To Fort McHenry, Md., from Cape May, Capt. F. F. SPRAGUE, Los Banos.

To Fort McPherson, Ga., from Camp Crane, Capt. B. S. STEVENS, San Francisco.

To Fort Snelling, Minn., from Camp Fremont, Capt. P. RICE, Los Altos.

To Pittsburgh, Pa., from Fort Oglethorpe, Major P. M. THOMAS, San Francisco.

To Riverside, Calif., March Field, from Camp Kearney, Capt. G. H. HASTINGS, Los Angeles.

To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Capts. J. E. COLLORAN, Los Angeles; H. V. HOFFMAN, Lieut. F. J. BRESLIN, San Francisco. For instruction, from Vancouver Barracks, Major P. R. FAIRCHILD, Woodland.

The following orders have been revoked: *To Lakewood, N. J.*, for instruction, from Camp Crane, Lieut. A. H. CURRIE, Los Angeles. *To New Haven, Conn.*, Yale Army Laboratory School, from Hoboken, Lieut. T. L. ROGERS, Long Beach.

Canal Zone

To Camp McClellan, Ala., base hospital, from Camp Jackson, Major W. M. JAMES, Ancon.

Colorado

To Boston, Mass., from Camp Devens, Capt. C. G. McEACHERN, Denver.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Major H. S. FINNEY, Denver.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. L. M. MAITLAND, Drake.

To report to the commanding general, Central Department, from Denver, Major F. H. McNAUGHT, Denver.

To San Diego, Calif., Rockwell Field, from Mineola, Capt. F. L. DENNIS, Colorado Springs.

The following order has been revoked: *To Camp Lee, Va.*, from Camp A. A. Humphreys, Lieut. A. H. PETERS, Colorado Springs.

Connecticut

To Camp Lee, Va., base hospital, from Williamsbridge, Capt. F. C. HYDE, Greenwich.

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. J. D. GOLD, Bridgeport. Base hospital, from Camp Crane, Capt. J. B. SULLIVAN, New Haven.

To Camp Zachary Taylor, Ky., base hospital, from New Haven, Major J. S. SIMMONS.

To Fort McHenry, Md., from Hoboken, Capt. C. K. PETERSON, Lakeville.

To Hoboken, N. J., from Camp Sevier, Lieut. S. B. WELD, Hartford.

To report to the commanding general, Northeastern Department, from New Haven, Lieut. J. W. CHURCHMAN, New Haven.

To Walter Reed General Hospital, D. C., from Army Medical School, Capt. C. H. TURKINGTON, Litchfield.

District of Columbia

To Army Medical School, as commandant, from Surgeon-General's Office, Col. W. P. CHAMBERLAIN.

To Camp Jackson, S. C., base hospital, as commanding officer, from Southern Department, Col. A. H. WEBBER.

To Camp Knox, Ky., as sanitary inspector, from Camp Dix, Major J. S. HOUGH, Washington.

To Hoboken, N. J., from Surgeon-General's Office, Major H. N. KERNS.

To Rochester, Minn., Mayo Clinic, for instruction, from Washington, Lieut.-Col. E. C. McCULLOCH, Major C. L. BEAVEN.

To Walter Reed General Hospital, D. C., from Camp Gordon, Lieut. J. H. ALLEN, Washington; from Camp Meade, Major R. Y. SULLIVAN.

The following order has been revoked: *To New Haven, Conn.*, Yale Army Laboratory School, from Rockefeller Institute, Capt. P. A. HORNADAY, Washington.

Florida

To Boston, Mass., from Camp Sheridan, Capt. G. R. HOLDEN, Jacksonville.

To East Norfolk, Mass., from Surgeon-General's Office, Capt. R. E. BALDWIN, Tampa.

To Fort McPherson, Ga., from Camp Crane, Capt. D. FORSTER, Hawks Point.

To Richmond, Va., from New York City, Lieut. H. M. SMITH, Chattachooche.

Georgia

To Boston, Mass., from Camp Devens, Lieut. J. D. BLACKBURN, Atlanta.

To Camp Pike, Ark., base hospital, from Camp Crane, Major W. B. CRAWFORD, Savannah.

To Camp Sheridan, Ala., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. W. R. DANCY, Savannah.

To Camp Wheeler, Ga., base hospital, for instruction, from Camp Crane, Capt. C. BARROW, Savanrah.

To Carlisle, Pa., from Fort Oglethorpe, Capt. L. W. CHILDS, Atlanta.

To Chicago, Ill., from Fort Oglethorpe, Capt. I. H. ADAMS, Macon.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. L. O. NICKELL, Macon.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut R. L. JOHNSON, Waycross.

To Fort McPherson, Ga., from Camp Sheridan, Capt. H. J. ROSENBERG, Atlanta.

To Fort Totten, N. Y., from Camp Lee, Capt. W. K. SWANN, Monroe.

To Hoboken, N. J., from Fort Oglethorpe, Lieut P. H. CHRISTIAN, Columbus.

To Rochester, Minn., Mayo Clinic, for instruction, from Fort McPherson, Major W. T. WEISSINGER; from Fort Oglethorpe, Lieut.-Col. N. T. KIRK, Major C. L. GANDY.

To West Baden, Ind., from Camp Crane, Lieut. H. J. PEAVY, Ja., Byron; from Fort Oglethorpe, Capt. T. H. STEWART, Ja., Atlanta.

Idaho

To Fort Tilden, N. Y., from Syracuse, Lieut. C. W. WILLIAMS, Laclede.

To Hoboken, N. J., from Surgeon-General's Office, Capt. R. E. MASON, Mackay.

Illinois

To Arcadia, Fla., Dorr Field, from Rantoul, Major L. C. COLLINS, Chicago.

To Azalea, N. C., from Fort Screven, Capt. C. M. CHEADLE, Rockford.

To Biltmore, N. C., from Fort Oglethorpe, Capt. M. T. GOLDSTINE, Chicago.

To Boston, Mass., from Camp Crane, Lieut. L. C. BASSETT, Farina.

To Camp A. A. Humphreys, Va., to examine the command for cardiovascular diseases from Camp Sevier. Lieut. T. S. HUGGARD, Chicago.

To Camp Beauregard, La., from Camp McClellan, Major T. P. WARD, Mount Vernon. As tuberculosis examiner, from Camp Cody, Capt. E. S. GILLESPIE, Wenona. Base hospital, from Fort Oglethorpe, Capt. D. B. HAYDEN, Chicago. *To examine the command for cardiovascular diseases*, from Camp Sevier, Lieuts. C. J. McMULLEN, E. F. MIELKE, Chicago.

To Camp Bowie, Texas, from Camp Beauregard, Lieut. V. F. KUCERA, Chicago.

To Camp Crane, Pa., from Hoboken, Major D. B. POND, Chicago; Capt. G. B. BUSHEE, Arlington; Lieuts. I. W. STEINER, Harvey; G. F. GILL, Rockford.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. E. W. WHITE, Chicago.

To Camp Grant, Ill., from Fort Oglethorpe, Lieuts. F. R. BUTTERFIELD, Z. J. LITTLE, Chicago. Base hospital, from Camp Crane, Major W. W. HAMBURGER, Chicago; from Fort Oglethorpe, Lieut. W. H. MILLER, Chicago.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. W. B. McCLURE, Evanston.

To Camp Meigs, D. C., from Camp Lee, Capt. D. M. KEITH, Rockford.

To Camp Zachary Taylor, Ky., from Camp Crane, Lieut. T. W. HAGERTY, Chicago.

To Dansville, N. Y., from Camp Crane, Lieut. C. J. CHALLENGER, Chicago.

To Fort Benjamin Harrison, Ind., from Camp Lewis, Capt. J. H. GREGORY, Milford.
To Fort Des Moines, Iowa, for instruction, from Camp Crane, Capt. M. PFEFFENBERGER, Alton.
To Fort Leavenworth, Kan., from the Surgeon-General's Office, Major H. M. ADLER, Chicago.
To Fort Logan H. Roots, Ark., from Camp Hancock, Capt. J. H. EVANS, Chicago.
To Fort McHenry, Md., from Camp Crane, Lieut. G. H. WILSON, Mount Carmel; from Cape May, Lieut. E. A. SCHLAGETER, Chicago.
To Fort Riley, from Fort Oglethorpe, Lieut. J. H. MITCHELL, Chicago.
To Fort Sheridan, Ill., from Camp Grant, Capt. H. W. DUERINGER, Elgin; Lieut. H. L. DAY, Bluffs; from Camp Wadsworth, Major R. T. WOODYATT, Evanston; from Fort Oglethorpe, Capts. J. M. WASHBURN, Chicago; W. F. McNARY, East St. Louis; T. A. BRYAN, Mattoon; Lieuts. B. F. DAVIS, Chicago; from Newport News, Major R. L. MORRIS, Decatur. For instruction, from Camp Crane, Capts. F. W. BRIAN, Bloomington; F. A. NORRIS, Jacksonville; W. F. SCOTT, Melrose Park; J. B. MOORE, Zeigler.
To Lakewood, N. J., from Camp Crane, Capt. S. R. CATLIN, Rockford.
To Millington, Tenn., Park Field, as flight surgeon, from Mineola, Capt. F. E. BRAMLEY, Chicago.
To report to the commanding general, Central Department," from Chicago, Lieut.-Col. E. J. DOERING, Chicago.
To Richmond, Va., from Camp Greene, Capt. E. M. RUNDQUIST, Rockford, from Camp Hancock, Capt. H. A. WARE, Chicago.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, N. Y.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. R. WETTSTEIN, Effingham.
To Urbana, Ill., and on completion *to Fort Sheridan, Ill.*, from Camp Grant, Lieut. R. H. WOODS, La Salle.
To Walter Reed General Hospital, D. C., from Camp Grant, Lieut. W. H. MILLER, Chicago.
To Washington, D. C., from Philadelphia, Lieut.-Col. P. P. SCHUYLER DOANE, Chicago.
The following orders have been revoked: *To Camp Logan, Texas*, from Fort Oglethorpe, Lieut. J. G. BERKOWITZ, Chicago. *To Camp Sevier, S. C.*, base hospital, from Camp Travis, Lieut. W. K. REED, Chicago. *To Rockefeller Institute* for instruction in treatment of infected wounds, and on completion *to Camp Upton, N. Y.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. GALLAND, Chicago.

Indiana

To Camp Bowie, Texas, from Camp Cody, Capt. G. W. BOWMAN, Indianapolis.
To Camp Crane, Pa., from Hoboken, Lieut. C. E. JUMPER, Terre Haute.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. O. E. FINK, Terre Haute.
To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. A. L. BRAMKAMP, Richmond.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. J. W. CARMACK, Indianapolis, J. L. WILSON, South Bend.
To Edgewood, Md., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. J. J. GROSVENOR, Richmond.
To Fort Sheridan, Ill., from Camp Grant, Capt. E. A. STURM, Jasper.
To Lakewood, N. J., for instruction, from Camp Crane, Lieut. V. GORDON, Blountsville.
To Otisville, N. Y., from New Haven, Capt. W. A. McBRIDE.
To Walter Reed General Hospital, D. C., from Camp Meade, Capt. O. L. McCAY, Romney.
To Washington, D. C., Catholic University, from Army Medical School, Lieut. E. C. GARBER, Dunkirk.
To West Baden, Ind., from Camp Crane, Lieut. R. A. GILMORE, Michigan City; from Fort Oglethorpe, Capt. H. H. WHEELER, Indianapolis.

Iowa

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Lieut. J. E. REEDER, Sioux City.
To Camp Crane, Pa., from Hoboken, Lieut. M. O. BRUSH, Shenandoah.
To Camp Jackson, S. C., from Fort Oglethorpe, Capt. G. F. HARKNESS, Davenport.
To Fort Sheridan, Ill., from Camp Grant, Lieut. W. CORNS, Montone.
To Fort Snelling, Minn., from Camp Crane, Capt. H. E. MEYER, Hampton; Lieut. I. H. WOLFE, Iowa City.
To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. A. C. DAVIS, Iowa City.

Kansas

To Camp Bowie, Texas, from Camp Beauregard, Lieut. A. G. KOCH, Hutchinson.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Major M. HAHN, Arkansas City.
To Fort McHenry, Md., from Camp Crane, Lieut. C. H. SMITH, Pittsburg.
To West Baden, Ind., from Fort Oglethorpe, Capt. E. D. EBRIGHT, Wichita.

Kentucky

To Aviles, N. C., from New Haven, Capt. D. P. CLAYPOOL, Waverly Hill.
To Biltmore, N. C., from Fort Oglethorpe, Capt. H. J. McKENNA, Louisville.
To Camp Abraham Eustis, Va., to examine the command for nervous and mental diseases, from Camp Zachary Taylor, Lieut. E. MOORMAN, Harned.
To Camp Greene, N. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieuts. W. T. LITTLE, Calvert City; G. M. WELLS, Glasgow.
To Camp Zachary Taylor, Ky., from Fort Oglethorpe, Capt. L. L. SMITH, Covington.
To Fort Snelling, Minn., from Camp Crane, Capt. L. KAHN, Louisville.
To report by wire to the commanding general, Central Department, from Bowling Green, Capt. F. E. BLACKERBY, Bowling Green.
To Walter Reed General Hospital, D. C., from Camp Colt, Lieut. G. L. THOMPSON, Lovelaceville.

Louisiana

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. H. HAMLEY, Lake Providence, Lieut. G. B. DICKSON, Shreveport.
To Camp Sheridan, Ala., from Camp Shelby, Lieut. R. D. MARTINEZ, Bunkie.
To Camp Travis, Texas, from Fort Oglethorpe, Lieut. H. B. SEEBOLD, New Orleans.
To report by wire to the commanding general, Southeastern Department, from Baton Rouge, Capt. C. McVEA, Baton Rouge, from New Orleans, Major I. DYER, New Orleans.
To Rochester, Minn. Mayo Clinic, for instruction, from Camp Beauregard, Major W. E. HALL.

Maine

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Major W. L. COUSINS, Portland.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. H. J. EVERETT, Portland.
To Chicago, Ill., from Fort Oglethorpe, Lieut.-Col. T. O. VANAMEE, Portland.
To Fort Benjamin Harrison, Ind., from Camp Sherman, Major F. E. LESLIE, Andover.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. W. B. MOULTON, Portland.
To Walter Reed General Hospital, D. C., for instruction, from Boston, Lieut. L. F. CARTER, Bradley.

Maryland

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Capt. R. H. FORD, Queenstown.
To Camp Cody, N. M., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Major H. R. CARTER, Ja., Baltimore.
To Camp Logan, Texas, with the board examining the troops for cardiovascular diseases, from Camp Travis, Lieut. B. J. SANGER, Baltimore.
To Camp McClellan, Ala., from Fort Oglethorpe, Capt. J. S. WILLOCK, Roland Park.
To Camp Meade, Md., base hospital, from Camp Crane, Lieut. H. H. WARNER, Baltimore.
To Camp Shelby, Miss., to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Major H. R. CARTER, Ja., Baltimore.
To Fort Benjamin Harrison, Ind., as commanding officer, from Camp Meade, Lieut.-Col. E. KING.
To Fort McHenry, Md., from Fort Oglethorpe, Lieut. W. T. ANDERSON, Baltimore.
To Hoboken, N. J., from New Haven, Lieut. W. C. VON GLAHN, Baltimore.
To Perry, Ohio, from Camp Lee, Capt. P. L. TRAVERS, Easton.
To Pittsburgh, Pa., from Camp Meade, Lieut. B. B. BRUMBAUGH, Denton.
To Plattsburg Barracks, N. Y., from Fort Oglethorpe, Capt. M. LEVY, Baltimore.
To report to the commanding general, Eastern Department, from Baltimore, Capt. J. S. DAVIS, Baltimore.
To Rochester, Minn., Mayo Clinic, for instruction, from Fort McHenry, Lieut.-Col. L. J. OWEN.

Massachusetts

To Army Medical School, for instruction, from Fort Oglethorpe, Capt. D. S. LUCE, Canton, Lieuts. C. W. BRESSLER, L. H. ROCKWELL, Boston.
To Boston, Mass., from Fort Oglethorpe, Capt. F. G. BARNUM, Boston.
To Camp Crane, Pa., from Hoboken, Lieut. A. O. METIVIER, Springfield; Lieut.-Col. F. B. LUND, Boston. From Camp Wheeler, Capt. E. A. KNOWLTON, Holyoke.
To Camp Custer, Mich., base hospital, from Camp Crane, Capt. S. S. ORR, Weston.
To Camp Devens, Mass., to examine the troops for cardiovascular diseases, from Camp Crane, Lieut. F. C. HALL, Boston.
To Camp Greene, N. C., with the board examining troops for cardiovascular diseases, from Lakewood, Lieut. C. C. STURGIS, Boston.
To Camp Jackson, S. C., from Fort Oglethorpe, Capt. R. H. PECK, Springfield.
To Camp Lee, Va., from Fort Oglethorpe, Capt. H. F. MACLEOD, Boston.
To Camp Meade, Md., base hospital, from New Haven, Major H. L. CONNOR, Haverhill.
To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Jackson, Lieut. M. W. PECK, Marblehead.
To Camp Upton, N. Y., from Fort Oglethorpe, Capt. E. C. SULLIVAN, Springfield. Base hospital, from Camp Crane, Lieut. C. W. STANSFIELD, Fall River.
To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. T. B. DELANEY, Lowell.
To Camp Wheeler, Ga., from Camp Joseph E. Johnston, Lieut. C. BEARSE, Boston.
To Carlisle, Pa., from Camp Devens, Capt. R. A. GREENE, Palmer.
To Fort McHenry, Md., from Camp Greene, Capt. E. S. BAGNALL, Groveland, from Fort Oglethorpe, Lieut. J. DANE, Boston. For instruction, from Camp Crane, Capt. W. G. DROUIN, Holyoke; Lieuts. A. R. GARDNER, Lowell, W. A. BISHOP, North Abington.
To Fort Mott, N. J., from Camp Colt, Capt. E. S. LEWIS, Princeton.
To Hoboken, N. J., from Camp Crane, Lieut. E. E. SMITH, Webster.
To Richmond, Va., for instruction, from Camp Crane, Capt. E. A. KNOWLTON, Holyoke.
To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion, *to Camp Upton, N. Y.*, base hospital for instruction, from Fort Oglethorpe, Lieut. H. L. HIRSCH, Springfield.
To Walter Reed General Hospital, D. C., from Camp Greene, Lieut. A. H. GALVIN, Springfield.
To Williamsbridge, N. Y., from Camp Crane, Capt. J. H. WYMAN, Medway; from Hoboken, Capt. G. HARTMAN, Lynn.

The following orders have been revoked: *To Camp Abraham Eustis, Va.*, from Newport News, Lieut. W. W. MARSTON, Newton. *To Camp Upton, N. Y.*, from Eastern Department, Capt. W. H. ALLEN, Mansfield.

Michigan

To Americus, Ga., Souther Field, from Mount Clemens, Lieut. J. J. McCANN, Ionia.
To Biltmore, N. C., from Fort Oglethorpe, Capt. D. P. MAYHEW, Detroit.
To Boston, Mass., from Camp Crane, Major C. D. BROOKS, Detroit.
To Camp Crane, Pa., from Hoboken, Capt. R. K. YOUNG, Detroit.
To Camp Custer, Mich., from Fort Oglethorpe, Lieut. S. W. GREEN, Detroit.
To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. J. G. R. MANWARING, Flint.
To Camp Greene, N. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. A. W. SCHMIDT, Gay.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. R. G. JAMES, Detroit.
To Camp Meade, Md., from Fort Oglethorpe, Capt. H. W. PLAGGEMEYER, Detroit.
To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Gordon, Capt. J. F. BERRY, Kalamazoo.
To Chicago, Ill., from Camp Dodge, Capt. J. G. CARR, Detroit.
To Fort Benjamin Harrison, Ind., for instruction, from Camp Crane, Lieut. E. M. CHAUNCEY, Albion.
To Fort Oglethorpe, from Belvidere, Ill., Lieut. S. A. STEALY, Charlotte.
To Fort Sheridan, Ill., from Camp Crane, Lieut. C. E. TRUESDELL, Detroit. For instruction, from Camp Crane, Capt. C. GEORGE, Jr., Ann Arbor.
To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. L. H. TOWER, Battle Creek.
To Pittsburgh, Pa., from Camp Crane, Major W. H. MARSHALL, Flint.
To report to the commanding general, Northeastern Department, from Boston, Lieut. E. J. LYNCH, Detroit.
To Roland Park, Md., from Camp Crane, Lieut. L. G. CAMPBELL, Birmingham.
The following order has been revoked: *To Camp Crane, Pa.*, Major C. D. BROOKS, Detroit.

Minnesota

To Benbrook, Texas, Carruthers Field, from Fort Sill, Capt. G. T. AYRES, Ely.
To Camp Crane, Pa., from Hoboken, Capt. W. E. RICHARDSON, Slayton, Lieut. H. VAN DE ERVE, Minneapolis.
To Camp Dix, N. J., from Camp Crane, Capt. F. W. BRIGGS, Moorhead.
To Camp Dodge, Iowa, base hospital, from Camp Crane, Capt. A. W. HILGER, St. Paul.
To Camp Grant, Ill., base hospital, from Fort Sheridan, Capt. E. BOECKMANN, St. Paul. With the board examining the troops for cardiovascular diseases, from Camp Meade, Major L. L. TENBROECK, Minneapolis.
To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Cody, Lieut. L. W. POLLOCK, Rochester.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. H. L. ULRICH, Minneapolis, Lieut. B. RAVN, Windom.
To Chicago, Ill., for instruction, from Camp Grant, Capt. N. H. SCHELDRUP, Minneapolis, Lieuts. G. G. MOREHOUSE, Owatonna, J. M. ARNSON, St. Paul.
To Columbus Barracks, Ohio, Lieut. T. B. SMITH, Minneapolis.
To Fort McHenry, Md., from Cape May, Lieut. C. B. DRAKE, St. Paul.
To Fort Porter, N. Y., from Lake Charles, Lieut. A. D. CORNIEA, St. Paul.
To Fort Sheridan, Ill., from Camp Dodge, Capt. G. E. BENSON, Minneapolis.
To Fort Snelling, Minn., from Camp Crane, Major A. T. MANN, Minneapolis, Lieut. F. O. SWANSON, St. Paul; from Camp Gordon, Lieut. O. L. WINTER, St. Paul.
To Lakewood, N. J., from Camp Crane, Capt. R. J. E. ODEN, Minneapolis.
To report to the commanding general, Central Department, from Minneapolis, Capt. R. S. PERRY, Minneapolis.
To Walter Reed General Hospital, D. C., from Camp Crane, Major E. M. JONES, St. Paul.
To Washington, D. C., Surgeon-General's Office, from Camp Crane, Major C. H. KEENE, Minneapolis.
The following order has been revoked: *To Fort McPherson, Ga.*, from Fort Oglethorpe, Major H. M. MORTON, Minneapolis.

Missouri

To Camp Benning, Ga., from Fort Oglethorpe, Lieut. T. T. HOXSEY, St. Louis.
To Camp Bowie, Texas, from Camp Beauregard, Lieut. N. ZOGLIN, Kansas City.
To Camp Greene, N. C., base hospital, for instruction, from Camp Jackson, Capt. R. S. TILLES, St. Louis.
To Camp Kearney, Calif., base hospital, from Camp Wadsworth, Capt. L. A. KEMPFF, St. Louis.
To Camp Lee, Va., base hospital, from New Haven, Major D. L. HARRIS, St. Louis.
To Camp MacArthur, Texas, base hospital, from Camp Crane, Major J. H. OUTLAND, Kansas City.
To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. J. R. GREEN, Independence.
To Colonia, N. J., for instruction, from Camp Jackson, Lieut. R. F. HYLAND, St. Louis.
To Cooperstown, N. Y., from Dallas, Capt. A. L. LUDWIG, Kansas City.
To Fort Des Moines, Iowa, for instruction, from Camp Crane, Lieut. A. M. GREGG, Joplin.
To Fort McHenry, Md., for instruction, from Camp Crane, Capt. H. E. HAPPEL, St. Louis.
To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. F. R. McDONALD, St. Joseph.
To Fort Sheridan, Ill., from Camp Grant, Lieut. J. L. LOUTZENHISER, Revanna.
To Fort Sill, Okla., Post Field, from Benbrook, Capt. N. W. SHARPE, St. Louis.
To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. H. A. ELKINS, Hardin, Lieut. J. L. SWARTS, St. Louis.
To report to the commanding general, Central Department, from Kansas City, Capt. C. HAYDEN, Kansas City; from St. Louis, Major W. H. LUEDDE, St. Louis.
The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieuts. H. B. PRYOR, Ashland; J. C. ROTTER, St. Louis.

Montana

To Camp Dodge, Iowa, from Fort Oglethorpe, Lieut. J. T. HOLMES, Polson.
To Camp Hancock, Ga., from Fort Oglethorpe, Capt. S. E. SCHWARTZ, Butte.
To Camp Zachary Taylor, Ky., base hospital, from Camp Crane, Capt. E. W. THUERER, Billings.
To Fort Snelling, Minn., from Camp Joseph E. Johnston, Lieut. F. S. PORTER, Moore.
The following order has been revoked: *To Camp Crane, Pa.*, from Hoboken, Capt. A. C. KNIGHT, Butte.

Nebraska

To Biltmore, N. C., from Fort Oglethorpe, Major F. J. WURTELE, North Platte.
To Camp Beauregard, La., to examine the command for nervous and mental diseases, from Camp Cody, Capt. H. R. CARSON, Norfolk.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. W. H. CRUTCHER, Lincoln.
To Fort McHenry, Md., for instruction, from Camp Crane, Major S. R. HOPKINS, Hastings.
To Hoboken, N. J., from Camp Logan, Capt. P. A. ROYAL, Normal.
To report by wire to the commanding general, from Fort Oglethorpe, Lieut. C. H. SHEETS, Cozad.
To Williamsbridge, N. Y., from Camp Greene, Lieut. H. A. ROSENBAUM, Harvard.

New Hampshire

To Army Medical School, for instruction, from Fort Oglethorpe, Major R. J. GRAVES, Concord.
To Chicago, Ill., from Fort Oglethorpe, Major G. C. WILKINS, Manchester.
To Fort McPherson, Ga., from Camp Joseph E. Johnston, Capt. R. S. PERKINS, Exeter.
To Fort Totten, N. Y., from Camp Lee, Lieut. A. BORLAND, Meredith.
To Walter Reed General Hospital, D. C., from Camp Leach, Capt. E. C. DURGIN, East Andover.
The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. F. E. ROWE, Nashua.

New Jersey

To Boston, Mass., from Camp Crane, Major E. B. ROGERS, Collingwood.
To Camp Abraham Eustis, Va., base hospital, from Hoboken, Major L. O. TARLETON, Lieuts. J. F. BOLAND, C. W. CUMMINGS.
To Camp Crane, Pa., from Hoboken, Capt. J. H. ORAM, Paterson, Lieut. F. L. MARTINE, Newark.
To Camp Dix, N. J., base hospital, from Camp Crane, Lieut. G. S. LAIRD, Westfield; from Fort Oglethorpe, Lieut. W. P. DAVIS, Atlantic City. For instruction, from Camp Crane, Capt. M. A. SHANGLE, Elizabeth.
To Camp McClellan, Ala., base hospital, from Camp Greene, Lieut. P. S. STOUT, Jersey City.
To Camp Pike, Ark., from Fort Oglethorpe, Lieut. R. D. SWAIN, Newark.
To Carlisle, Pa., from Fort Riley, Lieut. A. L. L. BELL, Englewood.
To Chicago, Ill., from Fort Oglethorpe, Capt. E. ACKERMANN, Dover.
To Colonia, N. Y., from Fort Oglethorpe, Major H. D. CORBUSIER, Plainfield. For instruction, from Camp Jackson, Lieut. W. SPICKERS, Paterson.
To Garden City, N. Y., from Mineola, Lieut. E. EASTWOOD, High Bridge.
To Hoboken, N. J., from Camp MacArthur, Texas, Lieut. N. W. PINTO, Hoboken.
To Richmond, Va., from Fort Oglethorpe, Lieut. C. B. MAXSON, Jersey City.
To report to the commanding general, Eastern Department, from Atlantic City, Capt. J. J. G. WILLIAMS, Atlantic City.
To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. H. V. HUBBARD, Plainfield, Lieut. M. K. SMITH, Morristown.
To West Point, N. Y., from Hoboken, Lieut. F. C. TYNG.

New Mexico

To Camp Bowie, Texas, as assistant to the camp surgeon, from Camp Cody, Major R. E. PARRISH.
To Camp Crane, Pa., from Camp Cody, Capt. L. V. SMITH, Deming.
To Camp Jackson, S. C., as camp surgeon, from Camp Cody, Lieut.-Col. J. J. REDDY.
To Denver, Colo., from Camp Cody, Lieut. S. H. JAMES, Lordsburg.
To Fort Ontario, N. Y., for instruction, from Camp Crane, Capt. L. V. SMITH, Deming.
To report to the commanding general, Southern Department, from Fort Bayard, Major J. F. HAMMOND.

New York

To Army Medical School, for instruction, from Fort Oglethorpe, Lieut. H. C. MONTGOMERY, Watertown.
To Avalon, N. C., from New Haven, Capt. L. KARMIOHL, New York, Lieuts. W. G. HAYWARD, Jamestown, J. KRANER, New York.
To Biltmore, N. C., from Camp Crane, Capt. J. A. COX, Albany; from Camp Hancock, Capt. E. N. WILCOX, Pleasantville.
To Boston, Mass., from Camp Crane, Capt. A. H. TERRY, Jr., New York, Lieut. W. MILLS, Mount Vernon.
To Camp Abraham Eustis, Va., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. R. A. CORBIN, New York.
To Camp Devens, Mass., from Walter Reed General Hospital, Capt. L. C. DUBOIS, Beacon. Base hospital, from Camp Crane, Major W. M. FORD, New York.

To Camp Dix, N. J., base hospital, from Rockefeller Institute, Lieut. F. W. BISHOP, New York.

To Camp Greene, N. C., base hospital, from Camp Crane, Capt. R. M. JONES, New York.

To Camp Lee, Va., as orthopedic surgeon, from Camp Sevier, Lieut. F. B. RING, Brooklyn. Base hospital, from Fort Oglethorpe, Lieut. H. L. SLOAN, New York.

To Camp Logan, Texas, for instruction, from Fort Oglethorpe, Capt. M. M. LUCID, Cortland.

To Camp Meade, Md., from Camp Crane, Lieut. J. M. McTIERNAN, New York.

To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Washington, Lieut. J. V. SWIERAT, Lancaster.

To Camp Pike, Ark., from Fort Oglethorpe, Lieut. G. J. MECCA, New York.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. G. C. BARONE, Buffalo.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. A. F. CALVELLI, New York. As tuberculosis examiner, from Camp Shelby, Lieut. H. M. SPOFFORD, Batavia.

To Camp Sherman, Ohio, base hospital, from Camp Crane, Lieut. R. W. MORIARTY, New York.

To Camp Upton, N. Y., from Fort Ethan Allen, Capt. F. W. SEYMOUR, Rochester. Base hospital, from New Haven, Capt. R. A. LAMBERT, New York. Base hospital, for instruction, from Camp Crane, Lieut. S. S. FRIEDMAN, New York.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. E. LEVY, New York.

To Camp Wheeler, Ga., from Camp Joseph E. Johnston, Lieut. G. F. BLUE, New York.

To Camp Zachary Taylor, Ky., base hospital, from Camp Crane, Lieut. H. J. WILSON, New York.

To Cape May, N. J., for instruction, from Camp Custer, Capt. J. HORNI, Brooklyn.

To Chicago, Ill., from Camp McClellan, Major C. J. HUNT, Clifton Springs.

To Colonia, N. J., from Fort Oglethorpe, Capt. T. D. BUCK, Rochester, Lieut. E. M. STERN, New York; from Lakewood, Lieut. W. W. LASHER, New York.

To East View, N. Y., for instruction, from Camp Custer, Capt. E. M. ARMSTRONG, New York.

To Edgewood, Md., to examine the command for nervous and mental diseases, from Washington, Lieut. H. C. BURGESS, Canadaigua.

To Fort Benjamin Harrison, Ind., from Camp Lee, Lieut. F. D. ZEMAN, Brooklyn; from Williamsbridge, Major D. D. ROBERTS, Brooklyn; Capt. C. DAVIEL, New York.

To Fort Des Moines, Iowa, from Walter Reed General Hospital, Lieut. H. L. PRINCE, Rochester.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. L. W. CALLAN, New York.

To Fort McPherson, Ga., from Camp Crane, Lieut. J. L. KINNER, Elmira; from Fort Oglethorpe, Lieut. C. A. HARGITT, Brooklyn.

To Fort Sheridan, Ill., from Camp Crane, Lieut. H. M. THOMAS, New York. For instruction, from Camp Crane, Capt. A. H. RODGERS, Corning.

To Garden City, N. Y., from Mineola, Lieut. F. B. MAGUIRE, Albany.

To Hoboken, N. J., from Camp Greene, Lieut. B. P. BROWN, Brooklyn; from Camp Lee, Major T. DARLINGTON, New York; from Camp McClellan, Lieut. H. W. KEMP, Brooklyn.

To Hot Springs, Ark., from Fort Oglethorpe, Capt. B. J. BECK, New York.

To Houston, Texas, Ellington Field, from Mineola, Lieut. G. BERGER, Port Chester.

To Lakewood, N. J., from New Haven, Lieut. H. T. HYMAN, New York. For instruction, from Camp Jackson, Major J. P. F. BURKE, Buffalo; from Fort Oglethorpe, Lieuts. R. G. BLOOD, A. C. HERRING, New York.

To Mineola, N. Y., Hazelhurst Field, from Princeton, Lieut. P. B. JENKINS, New York.

To Newport News, Va., from New Haven, Lieut. E. KELLERT, Albany.

To Otisville, N. Y., from New Haven, Capt. P. McPARTON, Schenectady.

To Plattsburg Barracks, N. Y., from Fort Oglethorpe, Lieut. T. HALPERN, New York.

To report by wire to the commanding general, Eastern Department, from Newark, Major J. MacDONALD, Jr., New York; from New York, Major J. F. FRASER, New York; from Philadelphia, Capt. A. S. MADDOX, New York.

To Richmond, Va., from Fort Oglethorpe, Major P. W. NATHAN, New York.

To Rockefeller Institute, from New York, Capt. T. F. X. SULLIVAN, New York. For instruction, from Camp Zachary Taylor, Lieut. F. L. GATES, New York.

To San Antonio, Texas, Kelly Field, as flight surgeon, from Hicks, Texas, Capt. G. M. CLOWE, Schenectady.

To San Francisco, Calif., Letterman General Hospital, from Camp Crane, Lieut. A. E. GORDIN, New York.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. O. HILL, Buffalo; from Fort Sheridan, Capt. C. P. HUTCHINS, New York; from New York, Lieut. M. KOHLENBERG, Brooklyn.

To West Baden, Ind., from Fort Oglethorpe, Capt. P. W. ROBERTS, New York; Lieut. H. BLAUVELT, Brooklyn.

To Williamsbridge, N. Y., for instruction, from Camp Crane, Capt. E. A. KING, New York.

To the retired list, from Ithaca, Major J. R. HARRIS.

The following orders have been revoked: *To Camp Crane, Pa.*, base hospital, from Camp Sevier, Capt. W. E. BOWEN, Rochester; from Fort Douglas, Lieut. G. N. BANCKER, New York. *To Camp Grant*, as assistant to camp surgeon, from Army War College, Major T. F. PATTERSON, Brooklyn. *To Camp Meade, Md.*, base hospital, from Camp Crane, Capt. H. W. JACKSON, New York. *To Fort Riley*, base hospital, from Fort Oglethorpe, Capt. A. S. RULAND, Syracuse. *To Houston, Texas*, Ellington Field, from Princeton, Lieut. P. B. JENKINS, New York. *To Philadelphia, Pa.*, from Eastern Department, Capt. A. S. MADDOX, New York. *To Williamsbridge, N. Y.*, from Walter Reed General Hospital, Lieut. S. DANZER, Brooklyn.

North Carolina

To Otisville, N. Y., from New Haven, Lieut. J. W. WILLCOX, Laurel Hill.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. J. H. ROZZELLE, Salisbury.

North Dakota

To Chicago, Ill., for instruction, from Camp Grant, Capt. R. R. HOGUE, Linton.

To West Baden, Ind., from Fort Oglethorpe, Major W. A. GERRISH, Jamestown.

Ohio

To Army Medical School, from Washington, Lieut. I. B. SMOCK, Canton.

To Boston, Mass., from Camp Crane, Major A. H. SMITH, Marietta; from Fort Oglethorpe, Capt. H. B. DORNBLASER, Springfield.

To Camp Greene, N. C., from Camp Crane, Capt. H. B. BLAKEY, Columbus.

To Camp Logan, Texas, for instruction, from Fort Oglethorpe, Lieut. L. F. LAUFERSWEILER, Columbus.

To Camp MacArthur, Texas, with the board examining the troops for cardiovascular diseases, from Camp Pike, Lieut. C. H. CHASE, Cleveland.

To Camp Sherman, Ohio, from Fort Oglethorpe, Lieut. R. R. BOND, Dayton.

To Carlisle, Pa., from Fort Oglethorpe, Lieut. D. M. SKINNER, Hamilton.

To Colonia, N. J., from Walter Reed General Hospital, Lieut. E. J. ROSE, Gallipolis.

To Dansville, N. Y., from Camp Lee, Lieut. G. A. ROWLAND, Columbus.

To Fort DuPont, Del., from Camp Holabird, Lieut. R. A. ELLIOTT, Alger.

To Fort Logan H. Roots, Ark., from Fort Oglethorpe, Lieut. P. G. SMITH, Cincinnati.

To Fort Michie, N. Y., from Camp Lee, Lieut. T. H. LAUTENSCHLAGER, Youngstown.

To Fort Sheridan, Ill., from Camp Grant, Lieut. C. H. HEFFRON, Metamora; from Fort Oglethorpe, Lieut. R. E. STEPFIELD, Bartertown.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. R. K. FINLEY, Xenia.

To Lakewood, N. J., for instruction, from Camp Jackson, Capt. D. W. PALMER, Cincinnati.

To Madison Barracks, N. Y., from Camp Hancock, Major H. M. OSBORNE, Youngstown.

To report to the commanding general, Central Department, from Cleveland, Lieut. C. A. BOWERS, Cleveland.

To Walter Reed General Hospital, D. C., for instruction, from Boston, Capt. J. R. TILLOTSON, Delphos; from Fort Oglethorpe, Capt. R. L. CAMERON, Youngstown, Lieut. L. E. PHIPPS, Youngstown; from Newport News, Lieut. E. J. ROSE, Gallipolis.

To Williamsbridge, N. Y., from Hoboken, Lieut. W. L. LATHROP, Metamora.

The following order has been revoked: *To West Baden, Ind.*, from Camp Crane, Capt. W. F. LAUTERBACH, Dayton.

Oklahoma

To Boston, Mass., from Camp Crane, Capt. M. RODGERS, Clinton.

To Camp Sheridan, Ala., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. O. HOVENDEN, El Reno.

To Fort Sam Houston, Texas, base hospital, from Camp Cody, Capt. G. H. APPLEWHITE, Shawnee.

To Fort Sheridan, Ill., from Camp Grant, Lieut. J. ASHLEY, Fletcher.

To report to the commanding general, Southern Department, from Fort Reno, Lieut. W. W. D. AKERS, Tyrone.

The following orders have been revoked: *To Camp Sevier, S. C.*, base hospital, from Camp Joseph E. Johnston, Capt. B. LOVELADY, Guthrie; Lieut. V. C. TISDAL, Elk City.

Oregon

To Boston, Mass., from Camp Crane, Capt. E. A. SOMMER, Portland.

To Camp Lewis, Wash., base hospital, for instruction, from Camp Crane, Lieut. G. BOYDEN, Pendleton.

To Camp Wadsworth, S. C., base hospital, from Camp Crane, Capt. C. E. SEARS, Portland.

To Fort Snelling, Minn., from Hoboken, Capt. C. J. McCUSKER, Portland.

To Lakewood, N. J., from Camp Crane, Capt. J. F. WOOD, Portland.

To report to the commanding general, Philippine Department, from Camp Meade, Major E. C. DALTON, Portland.

To Walter Reed General Hospital, D. C., from Camp Fremont, Capt. S. H. SHELDON, Portland.

Pennsylvania

To Azalea, N. C., from Camp Crane, Capt. J. B. McMURRAY, Washington.

To Camp Abraham Eustis, Va., base hospital, from Hoboken, Lieut. H. P. BLAKE, Walston.

To Camp Bowie, Texas, as tuberculosis examiner, from Camp Cody, Lieut. U. H. REIDT, Jeannette. *To examine the troops* for cardiovascular diseases, from Camp Travis, Lieut. W. D. STROUD, Philadelphia.

To Camp Crane, Pa., from Hoboken, Capt. H. T. SMITH, St. Peters.

To Camp Custer, Mich., to examine the troops for cardiovascular diseases, from Camp Crane, Capt. J. G. TAYLOR, Tunkhannock.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. C. F. LEONARD, Philadelphia.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. D. H. EDWARDS, Washington.

To Camp Jackson, S. C., for instruction, from Fort Oglethorpe, Capt. J. HEMPHILL, Jr., West Chester.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. E. P. LONGAKER, Philadelphia.

To Camp Sheridan, Ala., base hospital, from Camp Wheeler, Capt. R. F. RIDPATH, Philadelphia.

To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. W. L. CAMPBELL, New Castle.

To Camp Wheeler, Ga., base hospital, from Camp Crane, Capt. C. B. NOECKER, Scranton.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. W. E. CAMPBELL, Sharon; H. C. GRIM, Trumbaursville.

To Cape May, N. J., from Fort McHenry, Capt. G. H. CROSS, Chester.

To Colonia, N. J., from Fort Oglethorpe, Capt. W. C. BRYANT, Pittsburgh; from Fort Slocum, Capt. C. N. SILMAN, Pittsburgh.

To Dansville, N. Y., from Fort Oglethorpe, Lieut. J. P. BOYLE, Philadelphia.

To Detroit, Mich., from Fort Oglethorpe, Capt. A. R. MATHENY, Pittsburgh.

To Edgewood, Md., to examine the command for nervous and mental diseases, from Washington, Lieut. T. F. ERDMAN, Reading.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Major R. E. BRENNEMAN, Pittsburgh.

To Fort McHenry, Md., from Camp Crane, Major E. H. GOODMAN, Philadelphia; from Camp Meade, Capt. W. T. ELLIS, Philadelphia; from Fort Oglethorpe, Lieut. H. L. SHAFFER, Pittsburgh.

To Fort McPherson, Ga., from Camp Crane, Capt. J. R. COWAN, Danville.

To Fort Ontario, N. Y., from Fort Oglethorpe, Capt. W. B. SMALL, Philadelphia.

To Fort Sheridan, Ill., from Camp Grant, Capt S. J. REPPLIER, Philadelphia.

To Fort Terry, N. Y., from Camp Lee, Lieut. E. RANDALL, Ja., Philadelphia.

To Fort Washington, Md., from Camp Lee, Capt. C. I. WENDT, Pittsburgh.

To Hoboken, N. J., from Camp Logan, Lieut. G. A. PARKER, South Bethlehem. From Fort Slocum, Lieut. P. B. MEANS, Philadelphia.

To Lakewood, N. J., from Camp Crane, Major C. H. HENNINGER, Pittsburgh; Capt. A. E. THOMPSON, Washington. For instruction, from Fort Oglethorpe, Lieut. J. L. ARNOLD, Harrisburg.

To Newport News, Va., from Camp Sherman, Major B. F. DUCKWALL, Pittsburgh.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieuts. J. D. KISTLER, Pittsburgh; G. E. CRAMER, Sharpsburg.

To Richmond, Va., from Camp Greene, Major S. C. BURNS, Philadelphia.

To Rochester, Minn., Mayo Clinic, for instruction, from Camp Crane, Capt. A. W. SMITH.

To Washington, D. C., Surgeon-General's Office, from Camp Zachary Taylor, Major H. Austin Ardmore; from Fort Oglethorpe, Lieut.-Col. E. MARTIN, Philadelphia.

To West Baden, Ind., from Camp Crane, Lieut. B. F. FULTON, Pittsburgh; for instruction, from Camp Jackson, Capt. F. S. MORRIS, Pittsburgh.

To report to the commanding general, Eastern Department, from Philadelphia, Capt. J. W. WEST, Philadelphia; from Schenectady, Lieut. J. E. MOORE, Carnegie.

The following orders have been revoked: *To Rockefeller Institute*, for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, from Fort Oglethorpe, Capt. E. M. COWELL, Athens. *To Camp Sevier, S. C.*, base hospital, from Camp Joseph E. Johnston, Lieut. T. B. HERRON, Monessen.

Rhode Island

To Azalea, N. C., from Fort Oglethorpe, Major G. W. GARDNER, Providence.

To Camp Sevier, S. C., base hospital, from Camp Crane, Capt. C. E. HAWKES, Providence.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. E. W. BURT, Providence.

South Carolina

To Azalea, N. C., from New Haven, Major J. D. McDOWELL, York.

To Camp Beauregard, La., with the board examining the troops for cardiovascular diseases, from Camp Jackson, Major W. WESTON, Columbia.

To Camp Sevier, S. C., from Camp Wadsworth, Lieut. R. CATHCART, Charleston.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Major C. B. EARLE, Greenville.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. F. D. GILLIS, Mitchell.

To Newport News, Va., and thence *to Charleston, S. C.*, from Camp Sevier, Col. P. C. FAUNTLEROY.

South Dakota

To Lakewood, N. J., for instruction, from Camp Crane, Lieut. T. J. DEVEREAUX, Aberdeen.

Tennessee

To Camp Dodge, Iowa, to examine the troops for cardiovascular diseases, from Camp Zachary Taylor, Lieut. I. O. PARK, Union City.

To Camp Meade, Md., for instruction, from Fort Oglethorpe, Lieut. E. M. DELAY, Chattanooga.

To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Cody, Capt. F. B. BREWER, Nashville.

To Detroit, Mich., for instruction, from Camp Jackson, Capt. E. D. MITCHELL, Memphis.

To Fort Des Moines, Iowa, for instruction, from Camp Crane, Lieut. O. W. ROGERS, Knoxville.

To report to the commanding general, Southeastern Department, from Fort Logan H. Roots, Lieut. W. H. NILES, Tellico Plains.

The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. L. E. TRENT, Nashville. *To Rockefeller Institute*, for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. B. L. JACOBS, Chattanooga.

Texas

To Camp Abraham Eustis, Va., base hospital, from Hoboken, Lieut. E. H. INMON, Tahoka.

To Camp Bowie, Texas, from Fort Oglethorpe, Capt. K. V. KIBBIE, Fort Worth. As tuberculosis examiner, from Camp Cody, Lieut. W. E. CAMPBELL, Cedar Creek. Base hospital, from Camp Shelby, Lieut. C. H. BROOKS, Waco. Base hospital, for instruction, from Camp Crane, Capts. D. A. MANN, Beaumont; I. A. WITHERS, Fort Worth; A. M. McELHANNON, Sherman.

To Camp Crane, Pa., from Hoboken, Lieut. H. T. SMITH, Dallas.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Camp Custer, Major G. HAMILTON, Houston.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Capt. A. P. HOWARD, Houston; Lieut. W. TRAYLOR, San Antonio.

To Camp MacArthur, Texas, Lieut. A. J. STREIT, Marlin.

To Camp Meade, Md., from Camp Kendrick, Capt. A. W. C. BERGFELD, Sequin.

To Camp Sheridan, Ala., base hospital, from Camp Crane, Capt. H. M. LANHAM, Waco.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. W. C. DURINGER, Fort Worth.

To Fort Ontario, N. Y., from Camp Crane, Lieut. I. E. COLGIN, Waco.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. R. M. FRANCHER, Houston.

To Garden City, N. Y., from Mineola, Lieuts. A. J. POLLARD, Alvin; R. C. SMITH, Brandon.

To Urbana, Ill., and on completion *to Fort Sheridan, Ill.*, from Camp Grant, Lieut. S. J. PATE, Beaumont.

To Walter Reed General Hospital, D. C., for instruction, from Boston, Lieut. H. SHANNON, Dallas; from Camp Meade, Lieut. J. CAMP, Pecos.

The following orders have been revoked: *To Camp Jackson, S. C.*, from Atlanta, Capt. E. C. FOSTER, Whitt. *To Camp Meade, Md.*, from Camp Colt, Lieut. O. H. TALLEY, El Paso.

Utah

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. G. A. LIGHT, Salt Lake City.

Vermont

To Edgewood, Md., to examine the command for nervous and mental diseases, from Camp Humphreys, Capt. S. L. GOODRICH, Waterbury.

Virginia

To Biltmore, N. C., for instruction, from Camp Jackson, Capt. J. T. BUXTON, Newport News.

To Chicago, Ill., from the Surgeon-General's Office, Capt. L. M. ALLEN, Gaylord.

To Dansville, N. Y., from Camp Wadsworth, Lieut. G. G. HANKINS, Phoebus.

To Fort Sill, Okla., base hospital, from Camp Cody, Capt. L. N. HARRIS, Harrisonburg.

The following order has been revoked: *To Fort Adams, R. I.*, from Fort Oglethorpe, Lieut. W. H. REMINE, Lodi.

Washington

To Camp Lewis, Wash., from Camp Crane, Lieut. L. S. DEWEY, Okanogan.

To Houston, Texas, from Fort Oglethorpe, Capt. W. M. KARSHNER, Puyallup.

The following order has been revoked: *To Camp Lewis, Wash.*, Lieut. L. D. LONG, Seattle.

West Virginia

To Boston, Mass., from Camp Crane, Capt. W. S. FULTON, Wheeling.

To Camp Crane, Pa., from Camp Beauregard, Lieut. R. U. DRINKARD, Wheeling; from Hoboken, Lieut. H. H. ESKER, Clarksburg.

To Camp Gordon, Ga., base hospital, from Camp Sheridan, Capt. H. H. YOUNG, Charleston.

To Camp Lee, Va., from Hoboken, Capt. E. A. HILDRETH, Wheeling.

To Fort Des Moines, Iowa, from Walter Reed General Hospital, Capt. C. A. BARLOW, Beverly.

To Fort Sheridan, Ill., from Camp Crane, Major J. E. CANNADAY, Charleston.

To Garden City, N. Y., from Pittsburgh, Major W. T. OWENS, Clarksburg.

To Richmond, Va., for instruction, from Camp Crane, Lieut. R. U. DRINKARD, Wheeling.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. E. GRIM, Cameron.

Wisconsin

To Biltmore, N. C., from Camp Wadsworth, Capt. A. O. SANDERS, Superior.

To Camp Custer, Mich., from Fort Oglethorpe, Capt. A. Du PIERRE, Green Bay.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. S. G. PAKE, Hayward.

To Detroit, Mich., from Fort Oglethorpe, Capt. V. F. MARSHALL, Appleton.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. J. F. McNARY, Milwaukee.

To Lakewood, N. J., from Camp Crane, Capt. P. A. FOX, Milwaukee; from Fort Oglethorpe, Capt. C. W. GIESEN, Superior; Lieut. V. J. JACOBSOHN, La Crosse.

To Mineola, N. Y., from Garden City, Capt. E. J. ROLLEFSON, Superior.

To report by wire to the commanding general, Central Department, from Madison, Wis., Lieut. V. C. JACOBSON, La Crosse; from Milwaukee, Capt. J. D. MADISON, Milwaukee.

The following order has been revoked: *To Rockefeller Institute*, for instruction in the treatment of infected wounds, and on completion *to Camp Wadsworth, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. R. W. JONES, Wausau.

Wyoming

To Garden City, N. Y., from Mineola, Lieut. E. B. VAN COTT, Diamondville.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Passed Asst. Surg. F. A. CARMELIA, proceed to Columbus, Ohio, and Wheeling and Charleston, W. Va., for conference concerning the influenza situation.

Asst. Surg. R. P. SANDIDGE, proceed to necessary places in the state of Virginia for duty in connection with extracantonment sanitation.

Asst. Surg. R. W. HART, proceed to Stapleton, N. Y., for duty at the Marine Hospital.

Acting Asst. Surg. R. E. GRAMLING, proceed to necessary places in Kansas, including Topeka and Kansas City, for conference relative to venereal disease control.

Acting Asst. Surg. PARK HOWELL, proceed to Pensacola, Florida Quarantine Station for temporary duty.

Acting Asst. Surg. J. I. WHITTENBERG, proceed to Lexington and other places in the state of Kentucky for duty in the influenza control.

Constructing Engineer N. V. PERRY, proceed to Dawson Springs, Ky., to inspect certain property tendered for hospital uses.

Sanitary Engineer L. C. FRANK, proceed to Jackson, Miss., to attend conference of state health officers.

Sanitary Engineer H. W. STREETER, proceed to Baltimore, Md., for duty in epidemiological studies in influenza.

Scien. Asst. G. H. DECELL, proceed to Baltimore, Md., to collect data relative to the epidemiology of influenza.

Scien. Asst. W. L. WOOD, relieved at Alexandria, Va., proceed to Philadelphia, Pa., for duty in shipyard sanitation at Chester, Pa.

Chemist OLIVER H. SCHUNK, proceed to Milwaukee, Wis., to investigate pollution by industrial waste of the city water supply.

Chief Sanitary Inspector A. C. SHAW, proceed to Columbus, Ga., to study the milk and dairy situation in extracantonment zones.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

New County Officers.—The Maricopa County Medical Society at its annual meeting in Phoenix elected the following officers: president, Dr. Robert R. Brownfield; vice president, Dr. Harlan P. Mills; secretary, Dr. Kimball Bannister, and treasurer, Dr. Henry T. Bailey, all of Phoenix.

COLORADO

Medical Veterans of the World's War.—Officers and members of the Medical Corps of the United States Army, and of the Federal Draft and Advisory Boards met at the capitol, Denver, at the call of Capt. Horace G. Wetherill, M. C., U. S. Army, medical aide to the governor, to take preliminary steps toward the organization of the Colorado unit of the Medical Veterans of the World's War. Members of nineteen medical advisory boards, of seventy local boards of the several counties and of two district boards, in all about 600, are eligible to membership. Captain Wetherill presided and was instructed to appoint a committee on permanent organization.

ILLINOIS

Palmer to Move Office.—Dr. George T. Palmer, assistant director of the state department of public health and president of the Illinois State Tuberculosis Association, expects to move his office from Chicago to Springfield, by January 1.

Fire at Camp Grant.—Fire of unknown origin at Camp Grant, Rockford, is said to have destroyed the building occupied by the medical examination board handling discharge examination work, and it is said that 6,000 qualification cards and records of examination were lost.

District Society Meeting.—At the annual meeting of the North Central Illinois Medical Association held in Dixon, December 10, Dr. Otho B. Will, Peoria, was elected president, Dr. John C. White, Seatonville, vice president, and Dr. George A. Dicus, Streator, was reelected secretary-treasurer.

Chicago

Fire at State Hospital.—A fire at the Dunning State Hospital, December 11, did great damage to the tuberculosis building, a one-story frame structure, from which 400 patients were removed, many of them ill with influenza. No casualties occurred.

Special Number.—In celebration of the meeting of the American Public Health Association in Chicago during the week of December 9, the city department of health issued a special number of the *Bulletin of the Chicago School of Sanitary Instruction*. This bulletin gives details of the organization of the health department, together with a description and statistics of the activities of the various divisions and bureaus, including special investigations conducted by the department in 1917 and 1918.

Dudley Leaves Active Faculty.—Dr. Emilius C. Dudley, after thirty-seven years as professor of gynecology at Chicago Medical College and Northwestern University, Medical School, has retired from the faculty and has been made emeritus professor of gynecology. In commemoration of his long and faithful work for the school, the faculty gave a dinner in his honor, December 12, at which Dr. Archibald Church, Chicago, presided and at which addresses laudatory of Dr. Dudley were made by President Holgate of the Northwestern University, Dr. E. Quine, Dean Arthur I. Kendall, Major Samuel C. Stanton and Lieut.-Col. Nathan William McChesney.

KENTUCKY

State Aid to Visiting Nurses.—The state has a law enacted in 1918 providing that from any funds in the treasury not otherwise appropriated the state board of health may appropriate to any county, tuberculosis district commission, or other public welfare organization, a sum not to exceed $25 a month to pay the state's part of the salary of a visiting nurse employed under the act. Such nurses have been made a part of the health system of the state under a rule of the state board made on the advice of the attorney-general for the purpose of making legal the payments named.

Every Physician a State Health Officer.—Recognizing that the weak point in public health organization is the failure to secure and act promptly on reports of contagious or infectious diseases, the state board of health has endeavored to remedy this situation by making every physician in the state holding a certificate to practice medicine or other system of healing a permanent sanitary inspector of the board. A certificate is issued to such persons giving authority and instructions to isolate all cases of influenza or other communicable diseases for a period of ten days after recovery, and all cases suspected as such until it is known that it is not a communicable disease. They are required to report all cases of such disease to the county or city health officer within twenty-four hours. Delay in reporting or in taking proper action in regard to such infectious cases has been a handicap in all epidemic work, and has proved especially disastrous in the prevailing epidemic of influenza.

LOUISIANA

Mrs. Matas Dies.—Mrs. Adrienne Matas, partner in all professional labors and activities of Dr. Rudolph Matas, New Orleans, died December 10, from pneumonia following influenza. She regularly accompanied her husband to the meetings of the American Medical Association. For several years she had been an invalid, suffering with nephritis, and for the last five months, angina pectoris.

Vital Statistics of the State.—Louisiana has at last been placed in the registration area of the United States by the census bureau, so far as statistics of deaths are concerned. To obtain this recognition it is necessary that at least 90 per cent. of all deaths shall be reported. Louisiana is the fifth Southern state to be admitted, and the first in the Southwest to qualify.

Health Board Activities.—Dr. Oscar Dowling, Shreveport, president of the state board of health, has issued a formal statement setting forth the importance of the "Come Clean" campaign in which he is now engaged for the abolishment of diseases arising from social vice. The campaign is now an antivice crusade by a crusade against venereal disease. It is being conducted by the state board of health under orders of the United State Public Health Service, and its details are first, to clean up and enforce all repressive measures, second, to establish medical work in clinics and detention homes, third, to instruct the public through pamphlets, exhibits and literature, and fourth, to provide wholesome recreation, attractive lounging places, organized sports, reading rooms, and other good amusements.——Dr. Oscar Dowling has just returned from a two weeks' trip through the state undertaken in an effort to establish at various points a series of laboratories where physicians may be assisted in making quick and active diagnosis. The tentative points for laboratories are Shreveport, Monroe and Baton Rouge, and one will probably be established in the southwestern part of the state.

MARYLAND

New Officers.—At the meeting of the Baltimore City Medical Society, December 6, the following officers were elected: president, Dr. Guy L. Hunner; vice president, Dr. Harvey G. Beck; secretary, Dr. Emil Novak, and treasurer, Dr. William S. Gardner, all of Baltimore.

Personal.—Lieut. Alexander J. Gillis, Baltimore, has been awarded the British Military Cross. Lieutenant Gillis is confined to a hospital at Wandsworth, London, recovering from shell wounds in his side, received while on duty with the British Expeditionary Forces.

Fresh Outbreak of Influenza.—The increase in the number of new cases of influenza being reported to the health department has led the Advertising Club to request Health Commissioner John D. Blake to take immediate steps to prevent another epidemic. The health department is prepared to act should it become necessary to do so, but at the present time Health Commissioner Blake sees no reason for drastic action. Dr. Blake blames what appears to be a fresh outbreak of Spanish influenza on the failure of people to exercise care in keeping away from crowds after he lifted the bans that were put into effect during the late epidemic.

Jewish Health Board Organized.—At a meeting of the Jewish Health Board, recently organized, the following officers were elected: A. Ray Katz, president; Dr. Harry J. Moss, vice president; Herbert Wyle, treasurer, and Mrs. Isidore, secretary. The board will undertake to solve the questions of health and sanitation in Jewish families whenever possible. The organizations interested are: Hebrew Hospital, Social Service Department Hebrew Hospital, Hebrew Benevolent Society, Jewish Country Home, Jewish Home for Incurables, Young Ladies' Benevolent Society, Council Milk and Ice Fund, and the Jewish Home for Consumptives.

MINNESOTA

Death of Mrs. Hilbert W. Hill.—The death is announced of Mrs. Hill, wife of Dr. Hilbert W. Hill, St. Paul, the executive secretary of the Minnesota Public Health Association. The death occurred at the University Hospital, Minneapolis, November 27, from pneumonia following influenza. Mrs. Hill was active in child welfare work.

Course in Public Health Nursing.—The *Minnesota Public Health Association Journal*, December 5, announces that the four months' course in public health nursing, arranged for by the University of Minnesota in cooperation with the Minnesota Public Health Association, is now in operation. The course has been provided as an emergency measure to remedy the shortage of nurses and is offered to a limited number of graduate or senior nurses from accredited training schools. It is expected that a similar course extending over a period of at least eight months will be offered at the University hospital during the coming year.

NEW YORK

Bay Ridge Wants Hospital Returned.—At a recent meeting of the Medical Society of Bay Ridge, resolutions were adopted requesting the United States to rescind its action in taking over the Norwegian Hospital, inasmuch as taking over the hospital has deprived a district six miles square, with an approximate population of 300,000, of proper hospital facilities.

Typhoid at Herkimer.—The typhoid fever epidemic in the village of Herkimer is now believed to be well under control. During November only twenty-five cases developed against 105 cases during October. The majority of the new cases are believed to have been developed by contact rather than by water pollution. The original source of the epidemic was impure water.

Staff of Bureau of Venereal Diseases.—The following permanent appointments have been made to the staff of the Bureau of Venereal Diseases of the state department of health: Dr. Joseph S. Lawrence, Albany, chief; Dr. Edward H. Marsh, Brooklyn, consultant; Dr. Walter S. Goodale, Buffalo, hospital and dispensary inspector and organizer; Dr. Frederick S. Honsinger, Syracuse, lecturer on social diseases; Maud Casey, supervising nurse and social worker.

State Conference of Charities.—The State Conference of Charities and Corrections was held in Rochester, December 10 to 12. At the session of December 11, the problems of mental hygiene were discussed by Dr. Charles W. Pilgrim, Poughkeepsie, president of the State Hospital Commission, and Dr. Walter B. James, New York City, chairman of the state commission of the feebleminded, spoke on "The Duty of the Medical Profession and the State Toward the Mentally Defective."

Influenza Epidemic and Infant Mortality Rate.—The New York State Health Department calls attention to the fact that many babies were born during the period of the influenza epidemic, unattended by either a physician or a midwife. Since the infant mortality rate is based on the number of reported living births, it is very important to have all such unattended births reported by physicians, midwives and nurses as soon as they are discovered in order to prevent the recording of a high infant mortality rate that is not in accord with actual conditions.

Personal.—Dr. Cassar Smith, Olean, is reported seriously ill as the result of a cerebral hemorrhage.——Capt. H. Judson Lipes, M. C., U. S. Army, Albany, formerly of the Sanitary Corps of the One Hundred and Fifth Regiment, at Troy, who was seriously wounded in France, underwent an operation in New York, December 4.——Dr. Esther E. Parker, Ithaca, has returned after thirteen months spent in clinical and roentgen-ray work in France.——Dr. Ralph E. Clogher, Utica, has been invalided home after serving with the medical department of the American Red Cross in France.

Influenza Commission.—The first work of the Influenza Commission appointed by Governor Whitman, October 21, of which Dr. Hermann M. Biggs is chairman, is now under way. The attempt is being made to reach a definite conclusion as to the value of influenza vaccines in preventing the disease. A large number of different groups of people in institutions, cantonments, factories, hospitals, prisons, and patients of various physicians will be studied. Surveys of certain cities where influenza has been most severe will be made, not only in this state but in others, in order to study the cause of the local epidemic, the probable point of entry, the method of spread, types of the disease, the effect of age, sex, and nationality, and the incidence, mortality and morbidity rates. It is probable that in the states that have not been invaded, especially in the west, special studies will be made in regard to prevention by vaccines and the value of quarantine.

New York City

Personal.—Dr. William V. P. Garretson has been appointed consulting neurologist to the Hospital for Functional Reeducation of Disabled Soldiers and Sailors affiliated with Cornell University Medical College.——Major Sigmund Pollitzer, M. C., U. S. Army, attached to Base Hospital No. 1, was thrown from his car in a collision between automobiles, November 30, suffering a fracture of the skull.——Dr. Pang Yuen Tseo, a Chinese woman, has been assigned to the ambulance staff of Bellevue Hospital.

Influenza and Pneumonia.—The new cases of influenza and pneumonia reported to the health department show that the extent of the disease has neither increased nor diminished during the past few weeks, the number of cases reported daily varying from 100 to 200. The department of health points out that the number of cases will probably continue higher than the average and that sporadic outbreaks are to be expected. A comparison of the mortality rate for influenza in New York with that of other eastern cities shows that New York had a death rate of 27 per thousand population, against 54 in Philadelphia, 47 in Baltimore, 41 in Boston, 34 in Buffalo and 32 per thousand in Newark.

PENNSYLVANIA

Academy Meeting.—At the annual meeting of the Harrisburg Academy of Medicine, held December 6, Dr. M. Howard Fussell, professor of medicine in the University of Pennsylvania, delivered an address on influenza.

Tablet to Influenza Victim.—A bronze memorial tablet in memory of Dr. William B. Shick in Logan was unveiled in the Logan Methodist Episcopal Church, December 8. Dr. Shick died a martyr of his profession during the recent influenza epidemic.

University Offers Occupational Courses.—The school of occupational therapy for maimed soldiers, now stationed at the University of Pennsylvania, is to be united with the university proper and the work of men covers industrial and scientific subjects, including lectures on physiology education and correction for mental speech defects.

Personal.—Lieut.-Col. Richard H. Harte, head of Base Hospital Unit No. 10, one of the first American Hospital units to arrive in France, is in the Pennsylvania Hospital recovering from a serious operation.——Dr. Edward Martin,

major in the Medical Reserve Corps and stationed at a camp in Georgia, has been elected emeritus professor of surgical physiology at the University of Pennsylvania.——Dr. Herman D. Boyles, Newcastle, has been appointed coroner of Lawrence County to fill the unexpired term of the late Dr. Elmer P. Norris.

WEST VIRGINIA

Personal.—Dr. Vincent T. Churchman, Charleston, has succeeded Dr. Floyd F. Farnsworth, Frenchton, as president of the state health council, the latter having been appointed director of the Bureau of Venereal Diseases with headquarters at Charleston under the supervision of the United States Public Health Service.

WISCONSIN

Personal.—Dr. Henry C. Sibree has resigned as health officer of Sturgeon Bay, and has been succeeded by Dr. Thomas C. Proctor. Owing to illness of Dr. Proctor, Dr. Joseph J. Curtin has been placed temporarily in charge of the health office.

Sanatorium Item.—The new tuberculosis sanatorium for LaCrosse County, the tenth institution of its kind to be erected in the state, has been completed at a cost of $95,350.98. The institution has accommodation for forty patients, and already has thirty-five patients and a waiting list more than sufficient to tax the accommodation of the building. Miss L. S. Dietrichson is superintendent of the sanatorium.

CANADA

Unification of Health Boards.—The Essex Border Utilities Commission at the meeting held in Windsor, December 2, expressed themselves favorably toward the unification of the health boards of the five border municipalities of Ford, Walkerville, Windsor, Sandwich, and Ojibway, and decided to ask Dr. John W. S. McCullough, chief medical officer of health of Toronto, for suggestions looking toward a joint system of health inspection.

Hospital News.—A hospital building to cost $500,000 is to be erected near Woodbridge, Ont., about 15 miles from Toronto, by the Soldiers' Civil Re-Establishment. The cost is to be borne jointly by the provincial and federal governments. The site consists of 175 acres. It is to be used for patients with tuberculosis——The Royal Air Force Buildings at Beamsville, Ont., near Hamilton, have been inspected by Dr. Edward Ryan, Kingston, Ont., assistant director of invalided services, Toronto military district. It is quite likely they will be used for returned soldiers.

Personal.—William Edward Gallie, M.B., of the University of Toronto has received a diploma from the Royal College of Surgeons, England.——Among those who have recently returned from overseas are: Major A. D. Irvine, Montreal; Major G. M. Foster, Lieut.-Col. Alfred T. Bazin, Montreal, and Lieut.-Col. Gilbert Royce, Toronto.——Major Wesley Wright Pirt, Carman; Capt. Frederick Charles A'Court; Capt. Henry Maclaren, Ottawa, Ont.; Capt. Henry Clinton Pearson, Toronto, and Capt. Wallace Balfour Seaton, Carman, Man., have been appointed to the board of pension commissioners.——Major Malcolm M. Crawford has been appointed registrar at the new Rosedale Military Hospital, Toronto.——Lieut.-Col. Thomas A. Starkey, professor of Hygiene in McGill University, has returned to Montreal from overseas. He has been appointed consultant in sanitation in the eastern military districts, 4, 5, 6 and 7.

Public Health Act of New Brunswick.—As provided in the Public Health Act, 1918, Province of New Brunswick, the province has been divided into three health districts, each under the supervision of a district medical health officer, who in turn is responsible to the minister of health, a member of the provincial government. The act in addition provides for a chief medical officer, a chief health officer and a chief of laboratories, who complete the central bureau of health. Under the act three branches of public welfare are administered by the same officers, namely, public health and sanitation, medical inspection of schools, and collection of vital statistics. One provision of the act provides that "special attention shall be given to child welfare." The bureau at present consists of Hon. William F. Roberts, M.D., minister of health, St. John, N. B.; George G. Melvin, M.D., D.P.H., St. John, N. B., chief medical officer; Harry L. Abramson, M.D., chief of laboratories, and three district medical health officers, Francis J. Desmond, M.D., Newcastle, N. B.; John F. L. Brown, M.D., Woodstock, N. B., and Joseph A. Wade, M.D., St. Andrews, N. B.

GENERAL

Bayer Company Sold.—It it reported that the Bayer Chemical Company has been sold to the Sterling Products Company for $5,310,000.

Venereal Subjects' Travel Restricted.—Under an amendment to the interstate quarantine regulations announced by the Surgeon-General of the United States Public Health Service, persons having venereal disease must obtain a permit in writing from the local health officer before they will be permitted to engage in interstate travel. This permit must state that such travel is not dangerous to the public health.

Fenger Memorial Fund.—The directors of the Fenger Memorial Fund have set aside $500 for medical investigation. It is preferred to assist in work of a direct clinical bearing which may be carried out in an established institution, which will furnish the necessary facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Ludvig Hektoen, 637 South Wood Street, Chicago, before Jan. 15, 1919.

Bequests and Donations.—The following bequests and donations have recently been announced:

Dr. D. Bryson Delavan, New York City, $25,000 and Woman's Hospital in the State of New York, New York City, two fifty-seconds of the estate of $40,000,000 by the will of Mrs. Russell Sage.

St. Lukes Hospital and the Society of Hospitals of New York City, each $17,436 by the will of Clara Sutton Macy.

Hamilton, Mont., Hospital, a donation of $1,000 by Mrs. Margaret Daley, Hamilton.

Enlargement of Marine Hospitals.—Assistant Surgeon-General Arthur M. Stimson, U. S. P. H. S., has asked the house building committee, with the approval of the secretary of the treasury, for an appropriation of $10,000,000 to provide the first 5,000 beds of the 13,000 estimated as necessary to care for discharged soldiers. The completed plan calls for hospitals costing $26,000,000, and in this is included a substantial addition to the United States Marine Hospital at Chicago.

Obligation to Provide Pure Water.—Damages totaling $50,462 on account of typhoid fever and other sickness alleged to have been caused by drinking polluted water on the lake steamer *South American*, sailing from Detroit, have, it is reported, been awarded to eleven plantiffs, passengers on the vessel. The damages were fixed by a master in chancery after Judge Tuttle of the United States District Court had held that the evidence submitted proved beyond question that typhoid fever was contracted on the trip. It was alleged that the steamer, after being out thirteen hours from Detroit, stranded in the Hay Lake Channel of the Sault Ste. Marie River, and that after using up the water in the tanks aboard, impure water from the river was supplied for drinking purposes.

Ten Million for Medical Research.—The will of Capt. James Raphael De Lamar bequeaths his residuary estate estimated at $10,000,000 to the Harvard University Medical School, the College of Physicians and Surgeons of Columbia University, and Johns Hopkins University, for medical research into the cause of disease and into the principles of correct living; for the study and teaching of dietetics and of the effects of different foods and diets on the human system. The will provides that, in connection with the foregoing purposes, fellowships, instructorships, scholarships and professorships be maintained, and clinics, dispensaries and other places for such study and research be provided. Provision is also made for the dissemination of the results of such study among the people of the United States. The will suggests that the legatees use any means they deem expedient for the purposes named, and reques's that the fund be kept intact.

Social Hygiene Monthly.—This publication in the October number announces that the work begun and conducted for sixteen months under the auspices of the government, the Surgeon-General's Office, the Commissions on Training Camp Activities of the War and Navy Departments, through the Public Health Service, will not cease with the signing of peace, but that it is the desire to have it go on as a social movement. The monthly will continue publication on that basis and at present has a circulation of 30,000 copies. It is the intention to send the monthly without charge for an indefinite period to leaders of thought and action throughout the United States—to boards of health, educators, legislators, women's clubs, commercial bodies, labor leaders, clergy, etc. The work already accomplished, it is believed, could probably have been done under ordinary circumstances in a generation, and consequently the publication should not now be allowed to lapse.

Major-General Gorgas Investigating Yellow Fever.—In January, 1917, the International Health Board of the Rockefeller Foundation, with the permission of the Secretary of War, secured the services of Surgeon-General Gorgas to act as director of a commission to investigate yellow fever and malaria in Central and South America. In addition to General Gorgas, the commission consists of Henry R. Carter, clinician; Juan Guiteras, clinician and general adviser; Theodore C. Lyster, clinician; Eugene R. Whitmore, pathologist, and W. D. Wrightson, sanitary engineer. Preparations for carrying out this project had been practically consummated when the United States entered the world war making it impossible for General Gorgas to give up his official connection with the Army. Major-General Gorgas, having been retired on account of age, was again available for the work. Immediately on his retirement preparations were again entered into for carrying out the project as originally proposed, and last week he sailed for Ecuador as the first field of operations. Dr. N. E. Horner and other workers had preceded him. Accompanying him are Col. C. L. Furbush, who had acted as General Gorgas' executive officer during the latter's incumbency as Surgeon-General during the war, and Dr. Victor G. Heiser. The work is one in which General Gorgas has shown very especial interest; his sole ambition now, he says, is to rid the world of yellow fever.

Report of the U. S. Chemist.—The report of the Chief Chemist of the Department of Agriculture for the year reflects the influence of the war requirements in the way of personnel and direction of the work of the bureau, which necessitated the side-tracking or closing up of many lines in progress, and the rendering of all possible assistance to aid in winning the war. On account of the high price of drugs it is said that there was a tendency to revive flagrant types of adulteration, but with the aid of state and local authorities and the Food Administration it was often possible to suppress violations of the Food and Drugs Act more quickly than in normal times. The statistics of arrests and prosecutions with their results are given. Conservation of foodstuffs occupied some of the attention of the bureau, and the campaign for the extension of the use of new food fish was pushed, and such subjects as dehydration of vegetable products received considerable attention. Technologic investigations concerned such subjects as dust explosions, color investigations, naval stores, leather tanning and finishing materials, mildewproofing, fiber containers, the nutritive value of proteins and their chemistry, sugars and syrups, beverages and vinegar, fruits and vegetables, cereals and flour and the biologic causes of food spoilage and fermentation, beside researches in drugs and pharmacology, etc. In collaboration with other departments much good work was done, such as helping to secure fraud orders against fraudulent medicinal preparations, making recommendations to the railroad administration on the subject of standard refrigerator cars, assisting in food surveys, and methods of poisoning rats; this last in connection with the biological survey.

Influenza.—In a bulletin issued by the Public Health Service, December 11, a warning was given that the influenza epidemic is not passed and it is shown that severe epidemic conditions exist in various parts of the country. Since that date, according to later reports, the general condition has remained much the same, with improvement in some states and communities, and recurrences in others. The following summary by the service very well represents the present situation: In California increases in the number of cases of influenza are reported by San Francisco and several other cities in California. Indiana reports no improvement in the situation, except that the recent cases are milder. In Iowa a marked increase in the number of cases is reported. Kentucky reports a decided recrudescence in Louisville and some of the larger towns in the state. A few rural sections also report serious conditions. In contrast to the earlier part of the epidemic, the disease now appears to affect large numbers of schoolchildren. In Louisiana the disease has again increased in New Orleans, Shreveport, Lake Charles, Natchitoches, Standard, Zwolle, Noble, Convent and Kilbourne. At Lake Charles the recrudescence began December 1, and reached a height equal to that of the original epidemic. In Massachusetts the disease is apparently mild in character, but 5,500 cases were still reported last week. St. Louis reports more than 1,700 cases of influenza in three days, ending December 9. Mississippi reports a recrudescence in Hattiesburg. In Nebraska the situation is still very serious. New Jersey reports a substantial increase in a number of districts in which the disease had subsided and the disease is still prevalent throughout the state. From Ohio recrudescences are reported as occurring in Cincinnati, Cleveland, Columbus, Akron, Ashtabula, Bucyrus, East Liverpool, Salem, Lakewood, Medina, Franklin, Marion, Niles and Youngstown. The disease appears to be milder than during the first period of the epidemic. Pennsylvania reports a recurrence of influenza in a number of localities. Conditions are said to be worse than the original outbreak in Erie, Newcastle, and Johnstown. In South Carolina there is a general recurrence, especially in those sections where the epidemic raged some time ago. Vermont reports a recrudescence, but the disease appears to be milder in character. The state of Washington shows a sharp increase in the number of cases of influenza reported. West Virginia reports a recrudescence of the disease in Charleston, South Charleston, Bluefield and Clarksburg. In Wheeling conditions are said to be as bad as ever. The Surgeon-General advises the closing of the public schools on the first sign of the reappearance of the epidemic and points out that the disease apparently now tends to occur more frequently among schoolchildren.

FOREIGN

Roux to Retire.—Dr. Pierre Roux, for many years director of the Pasteur Institute, Paris, is about to retire and will be succeeded by Dr. A. C. Calmette, director of the Pasteur Institute of Lille.

Awards of the Royal Society Medals.—The *British Medical Journal* announces that the Copley medal this year goes to Prof. H. A. Lorentz, late professor of physics in the University of Leyden, for his researches in mathematical physics; the Davy medal to Prof. F. S. Kipping, professor of chemistry at University College, Nottingham, for his studies in the camphor group and among the organic derivatives of nitrogen and silicon; the Darwin medal to Dr. H. F. Osborn of New York, for his researches on vertebrate morphology and paleontology, and one of the Royal medals to Prof. F. G. Hopkins, professor of biochemistry in the University of Cambridge, for his researches in chemical physiology.

Deaths in the Profession Abroad.—Dr. **Ruperto Berras**, a member of the Uruguayan Medical Mission in France. After the return of the mission he remained in France, serving for many months at the Vaugirard military hospital at Paris.——Dr. **L. Merelli**, a prominent bacteriologist and serologist of Pisa, a victim of influenza.——Dr. **F. Todaro**, professor of anatomy at Rome, rector of the university and senator of the realm, aged 83.——Dr. **C. Remy**, professor of surgery at the University of Paris.——Dr. **Marty**, one of the oldest members of the Paris Académie de Médecine, a consulting chemist for the government.——Dr. **C. Colombo**, director of the Instituto kinesiterapico at Rome, and leader in the movement for physical culture for the young.——Dr. **O. Dourloo** of Copenhagen, president of the organized medical officers of the sickness insurance societies, aged 46.——Sir **H. Weber**, London, author of "Prolongation of Life," aged 95. He retired from practice at 80 but spent daily two or three hours in the open air, walking for 30 to 50 miles a week. He was among the first to advise the tuberculous to go to the mountains, even in winter. He was an honorary member of many learned societies, and with his son, Dr. F. Parkes Weber, published "Climatotherapy."

Fifth International Psychanalysis Congress.—The world war interfered with the meeting of this congress which had been planned to be held at Dresden. Besides the war, there were also certain difficulties in the way in connection with Jung's so-called "split" in the psychanalytic movement. A Netherlands physician, Dr. J. H. W. van Ophuijsen, now relates in the *Nederlandsch Tijdschrift*, Oct. 19, 1918, that the postponed congress was finally summoned to meet at Budapest, Sept. 28-29, and he describes his impressions of the congress as he made the trip from 's-Gravenhage, Holland, to Budapest. The main theme for discussion was the treatment of war neuroses, and the addresses by Ferenczi of Budapest, K. Abraham of Allenstein and E. Simmel of Posen, all concurred in estimating war neuroses as merely manifestations of the mechanism of the reaction to fright, the "fright neuroses" of peace times. The speakers were also unanimous in classifying these neuroses, with Freud, as anguish-hysteria and repression-hysteria. The number of cases of actual psychasthenia which have developed during the war was stated to be extremely small. Some brief communications discussed psychanalysis from the medical standpoint, and others discussed it in its application to other sciences. Between these two fields stood Freud's own address on "Ways for Psychanalytic Therapy." Jellinek and Roheim

discussed "Friendship" and "The Ego Among Primitive Peoples," and Tausk outlined the principles for psychanalysis of the faculty of judgment. It was decided that the next international Psychanalysis Congress will be held in the Netherlands.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Resignation of Surgeon-General of Colombian Army.—The *Repertorio* of Bogotá states that Dr. M. Canales has resigned his position as chief of the medical department of the Colombian army.

Recent Deaths in the Profession.—Dr. E. Peña, director at one time of the Asistencia Publica of Buenos Aires, and initiator of the Hospital Tornu for the tuberculous.——Dr. V. Grau, city physician of Tres Arroyos, aged 71.——Dr. C. C. Sundblad, one of the founders of the Children's Hospital of Buenos Aires, aged 62.——Raphael Rubirosa, formerly a leading surgeon of the Dominican Republic, aged 33, died recently in the Manhattan State Hospital, New York.

Finlay Souvenir Volume.—The July-August number of the handsome journal issued by the national public health authorities of Cuba is entitled "Numero extraordinario en homenaje a la memoria de Dr. Carlos J. Finlay," on the anniversary of his death. It contains 197 pages, the size of the pages nearly as large as those of THE JOURNAL, and contains a photograph of Dr. Finlay and of the monument with his portrait bust which has been installed in the court of the headquarters of the public health department, the *Secretaria de Sanidad y Beneficencia*. All of Finlay's scientific works are reproduced or summarized, from 1865 to 1912. His communication on the transmission of yellow fever through an intermediary agent was presented to the International Sanitary Conference at Washington, D. C., in 1881. He did not specify the mosquito in that communication, but did this in his address before the Academia de Ciencias Medicas, Fisicas y Naturales, at Havana, Aug. 14, 1881. His address was republished in English and Spanish with the title "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever." This journal issued by the National Public Health Service in Cuba, *Sanidad y Beneficencia*, is always a large handsomely printed and illustrated journal with articles in Spanish and in English, bearing on matters of sanitation, vital statistics, etc. The director of the service is Dr. F. M. Capote, with Dr. Juan Guiteras and Dr. R. Menocal as subdirectors. The editor of the journal is Dr. E. Aragon. It is now in its twentieth volume.

MEXICO LETTER

MEXICO CITY, Dec. 1, 1918.

Influenza

Influenza spread throughout the whole of the Republic, from north to south, during October and November. The central tableland was most seriously affected, the seacoast much less.

Puebla suffered most, the deaths totaling 300 a day, to a population of 100,000. The City of Mexico also had its daily death rate increase from seventy-five to 250. The disease appeared in a hemorrhagic form, a nervous with delirium and a gastro-intestinal form, but the highest mortality was in the respiratory form, frequently complicated with bronchopneumonia. It seems—in accord with what has been observed elsewhere—that young persons were affected most, and that persons who had the disease in a severe form in 1890 escaped it this time.

Bacteriologic research revealed nothing new, only the usual microbes of bronchitis and pneumonia being encountered, and the Pfeiffer bacillus only occasionally. Dr. F. Paz of the National Bacteriologic Institute, cultivated the *Micrococcus catarrhalis* from the blood of patients on two occasions.

At date of writing, the disease seems to have died out in this city and throughout most of the country.

Smallpox

There have been some cases of hemorrhagic smallpox at Puebla recently, but the disease has not spread owing to prompt isolation of the sick and vaccination of the others.

The Liberty Loan in Mexico

The Fourth Liberty Loan was a complete success in Mexico, as the quota assigned, $1,000,000, was oversubscribed, over $2,250,000 being collected. The bonds were bought not only by citizens of the United States residing here, but by citizens of the other Allied countries and by a goodly number of Mexican sympathizers with the noble cause. The boche propaganda tried to make the public believe that the business would be a failure, but like the propaganda itself, it lost influence and failed of effect because it had been placed in the hands of foreign adventurers or of Mexicans with antecedents not particularly honorable.

The Armistice

There was great rejoicing in the Capital when the news arrived that the armistice had been signed in Europe. The majority of the cultivated elements of the nation had sustained the cause of the Allies, and they joined with the foreigners in celebration of the victory. Impressive religious services were held as well as balls and banquets to celebrate the success obtained by the American arms in the cause of justice for the world. The most eloquent of Mexican orators, Lic. Urueta, said at one important meeting in Mexico that only imbeciles or the ignorant had sided with the cause which Germany sustained, and he was much applauded.

Personal

The director of the National Medical School, Dr. R. Amor, has been appointed *senador suplente* for the federal district.——Dr. A. F. Alonso, a well known ophthalmologist of San Luis Potosi, has recently moved to Mexico City. He represents the state of San Luis in the senate where he has always expressed opinions favorable to the cause of the Allied nations.——Dr. E. L. Abogado died recently. He was president of the local medical society, known as the "Pedro Escobedo." For many years he published a medical journal, now defunct, the *Cronica Medica Mexicana*.

New Society

A scientific and mutual aid society has recently been founded in Mexico, entitled the Sociedad Mexicana de Agricultura y Veterinaria. Its headquarters are 4/a de Donceles, 87, Ateneo Ceres, Mexico, D. F.

Cultivation of Quinin

The government through the agricultural department has applied to Ceylon and to Peru for a good quantity of seeds of different species of "cinchona," with the object of cultivating this useful plant in the warm regions of the country. Attempts have been made on other occasions to cultivate the quinin plant in the state of Veracruz, but even although it was found to thrive well there, its cultivation never was carried to a point where it would have commercial importance.

Infant Welfare in Yucatan

The municipality of Merida, Yucatan, recently organized a competitive baby show with certificates and money prizes. The show was a great success. The *Universal*, the leading Mexican daily, has organized on different occasions two competitive exhibitions of the kind.

Aid for the People of the Devastated Regions

The ladies of the Allied colonies here are still busily at work making garments to be sent to Europe to relieve the peoples freed from the yoke of the invader.

Donation

A number of persons contributed money to aid in the combating of the epidemic of influenza, among others, Mr. E. L. Doheny of New York, president of the Huasteca Petroleum Co., who donated 30,000 pesos for the purpose.

Vital Statistics

As a curiosity, I add the official record of the deaths over a certain period in a town in San Luis fifty years ago: Died a natural death, 1; died of grief, 5; died of fright, 2; died of disease, 2.

LIMA LETTER

LIMA, PERU, Nov. 7, 1918.

Personal

The National Academy of Medicine has just resumed its labors with important discussions on the compulsory registration of tuberculosis and the sanitary improvement of Lima. The existing vacancies in its membership have been filled by the election of Drs. Carlos Monge, Ramon Ribeyro and Carlos Enrique Paz Soldan.

Sanitation of Lima

Congress has just passed the bill, which will soon become a law, on the sanitation of Lima. It includes rebuilding of the city sewers, provision for a new water supply, and street paving. The law contemplates the placing of a loan of $5,000,000, 70 per cent. of which will be offered in foreign

countries, most probably in the United States. Proposals for these works will be requested from constructing firms, thus offering an excellent opportunity for American houses which might wish to invest money in Peruvian enterprises. Mr. Spalding, a civil engineer, is under contract with the city of Lima for the preparation of the necessary plans.

Febrile Epidemic

At present, Lima, Callao and the smaller towns in that vicinity, as likewise other cities in the country, are suffering an epidemic of catarrhal character, probably influenza, which has caused a great deal of sickness. The chief symptoms are a high fever (100.2 to 104 F.) with no initial chills, abundant expectoration, cough, nasopharyngeal catarrh, prostration, and nosebleeding on the third or fourth days coinciding with the subsidence of the fever and the bronchial cold that follows. The fever lasts only three or four days, is mild and only causes death when previous lesions existed among the infected persons. In order to avoid the spread of the disease, a number of measures have been adopted; as closing the schools, issuing popular pamphlets of instruction and the appointment of a special commission to perform bacteriologic examinations. The work of the commission has not been made public as yet, but it seems that the presence of a gram-positive diplococcus has been verified a number of times. The Academy of Medicine has also appointed a commission of investigation.

The Orphan Asylum

The Society of Public Welfare of Lima has begun the construction of an adequate orphan asylum for which contributions have already been received to the extent of $250,000. Steps are also being taken for the establishment of an indigent asylum.

PARIS LETTER

Paris, Nov. 21, 1918.

Etiology and Transmission of Trench Fever

At a recent meeting of the Académie de médecine, Dr. Strong read a report on this subject. Trench fever raged in some of the armies on the western front, causing a considerable morbidity. In order to secure information as to the development of the disease, it was considered necessary to investigate the mode or method of transmission. A commission appointed by the American Red Cross undertook this work, and conducted experiments on American soldiers which disclosed the method of transmission. Trench fever is not transmissible to animals. Of 103 experiments on men, infected by bites of lice or transmission by the blood, the urine or the sputum, the disease was produced in sixty-three. These experiments confirmed the belief that trench fever is a specific infectious disease. The causative organism is a nonfiltrable virus, present in the blood plasma; inoculating healthy persons with this plasma produces the disease. The disease is usually transmitted through the bites of lice. The virus may be found in the urine and in the sputum. These excretions should, therefore, always be sterilized and every effort should be made to protect the soldiers against the bites of lice.

A Ministry of Public Health

In the name of the Commission d'hygiène of the Chambre des Députés, M. Navarre, deputy of the département de la Seine, proposed the creation of a ministry of public health to coordinate and have control of all the public health services, civil and military hospitals, asylums, etc.

In Honor of the American Red Cross

M. Davison, president of the war committee of the American Red Cross, was received at the Hotel de Ville de Paris, the day following the signing of the armistice. The city authorities made it a festive occasion. Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, was present at the ceremony, accompanied by Maréchal Joffre. M. Chassaigne-Goyon, president of the Conseil municipal de Paris, addressing Mr. Davison, expressed deep gratitude for the miracles accomplished by the Red Cross, and for the generosity of countless Americans who had made these miracles possible.

Control of Radium

A decree has been published in the *Journal Officiel* organizing the control of the manufacture and distribution of radium and, in a general way, of all radio-active substances and luminous products derived from them. This Bureau des corps radioactifs, created in the ministère de l'armement, will have supervision of manufacture, importation and exportation. The consumption will be controlled by the office of the undersecretary of state for the Service de Santé militaire, and the geographic service of the army.

Death of Dr. Gaston Humbert

Dr. Gaston Humbert, assistant professor on the medical faculty of Paris, and surgeon to the hospitals, is dead.

Personal

At its last meeting the Académie de médecine elected to membership in the section de pathologie médicale, Dr. Charles Dopter, médecin principal of the army, professor of epidemiology in the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce.

LONDON LETTER

London, Nov. 14, 1918.

Sir Auckland Geddes

In this country, unlike France, very few physicians enter Parliament, and much fewer attain a prominent position in the political world. However, there are two ministers in the present government who before they entered politics were qualified though not practicing physicians. Curiously, they were both lecturers on anatomy. Dr. Addison, the minister of reconstruction and former minister of munitions, was lecturer on anatomy at St. Bartholomew's Hospital before he entered Parliament as liberal member for the working class constituency in London. Sir Auckland Geddes, the minister of national service, graduated with the degree of M.D. at Edinburgh in 1906 and subsequently became professor of anatomy at the Royal College of Surgeons of Ireland and later at McGill University, Montreal, where he made a reputation as a biologist. He served in France during the war and attained the rank of brigadier-general. Unlike Dr. Addison, he was not a politician before he entered the government. The prime minister, Mr. Lloyd George, made a new departure when he formed his government by appointing ministers who were not politicians but experts in regard to the duties they had to take up. Sir Auckland Geddes' brother, Sir Eric Geddes, the first lord of the Admiralty, is another example. He was previously controller of the Admiralty. Sir Auckland Geddes has just been appointed president of the Local Government Board, the duties of which he will combine with those of his present duties of minister of national service. With the close of the war the latter duties must considerably diminish. It is thought that he will become the first minister of health, an office which, as foreshadowed in previous letters, is to be created. The results of the examination of the whole male population of military age by the ministry of national service has disclosed an enormous amount of physical unfitness in the population, only about one third being found fit for Grade 1. The new ministry of health will combine all the duties with regard to the health of the people that have been performed by many departments, with consequent waste of energy and want of cooperation.

Strike at an Irish Lunatic Asylum

More than 180 attendants at Ballinasloe Asylum went on strike from the institution at half an hour's notice, leaving about 1,500 lunatics unguarded. There were in the asylum at the time about 280 patients with suicidal and homicidal tendencies. The committee offered a 10 per cent. rise on prewar wages without the bonus, but this was refused. Fifty patients, several of the most dangerous type, escaped. After six hours' absence the staff was prevailed on by a priest to resume work. The resident magistrate on his own responsibility guaranteed the required wages.

Marriages

Walker Atwood Yeakle, Assistant Surgeon (j. g.), U. S. N. R. F., Norristown, Pa., on duty at Norfolk, Va., to Miss Elizabeth M. Wheeler of Towson, Maryland, November 27.

Hugh Quitman Allison, Lieut., M. C., U. S. Army, Grayville, Ill., to Miss Bessie Williams of Mount Carmel, Ill., at Belleville, Ill., February 8.

Aloysius James Larkin, Melvin, Ill., to Miss Florence Mary Garvy of Chicago, September 4.

Henry H. Seltzer, Washington, D. C., to Dr. Sarah L. Behm of Colorado, recently.

Deaths

Samuel Abbott Green, Boston; Harvard Medical School, 1854; aged 88; a member of the Massachusetts Medical Society; surgeon of the Second Massachusetts Militia in 1858; assistant surgeon, First Massachusetts Volunteers, and surgeon, Twenty-Fourth Massachusetts Volunteers, and brevetted lieutenant-colonel for gallant and distinguished services in the field during the Civil War; superintendent of the Boston Dispensary from 1865 to 1872; city physician of Boston from 1871 to 1881; mayor of Boston in 1882; a member of the board of experts appointed by Congress to investigate yellow fever in 1878; for thirty years an overseer of Harvard College; a trustee of the Peabody Education Fund since 1888; librarian and vice president of the Massachusetts Historical Society; author of many monographs on historical subjects; died in the Hotel Lennox, Boston, December 5.

Benjamin Troop Phillips, Menominee, Mich.; Rush Medical College, 1870; aged 78; a member of the Michigan State Medical Society; president of the Wisconsin State Medical Society in 1892; a veteran of the Civil War; chief surgeon of the Lumbermen's Provident Hospital and St. Joseph's Hospital; one of the founders and for a time professor of surgical anatomy and operative surgery on the cadaver in the Wisconsin College of Physicians and Surgeons, Milwaukee; local surgeon of the Chicago and Northwestern system since 1871; died at his home, November 29, from cerebral hemorrhage.

Howard Walter Beal, Major, M. C., U. S. Army ● Worcester, Mass.; Harvard Medical School, 1898; aged 49; a member of the American Association of Genito-Urinary Surgeons, and American Urological Association; formerly Acting Assistant Surgeon, United States Army, surgeon to the out-patient department and cystoscopist to the Worcester Memorial Hospital, and cystoscopist to the Worcester City Hospital; who was injured by a shell fragment, while on duty with the American Expeditionary Forces in France, July 18, died from his wounds in Paris, two days later.

Stephen John Henry Reed ● **Capt., M. C., U. S. Army,** Fultonville, N. Y.; Albany (N. Y.) Medical College, 1907; aged 37; for two terms coroner of Montgomery County; who went to France with the One Hundred and Thirtieth U. S. Infantry, in May last, and afterward was assigned to the One Hundred and Thirtieth Field Hospital, Sanitary Train No. 108; was killed in action at Hill No. 281, October 21, and buried in the military cemetery at Glorieux, France.

Died in the Service
IN FRANCE
CAPT. STEPHEN J. H. REED, M. C.,
U. S. ARMY, 1881-1918

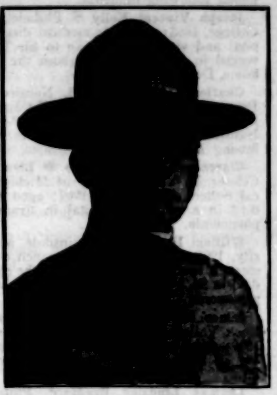
Irvin Edmund Bennett, San Francisco; University of Boulder and Denver, 1889; Jefferson Medical College, 1891; at one time a member of the Medical Society of the State of California; a veteran of the Spanish-American War, in which he served in the Philippine Islands as captain of United States Volunteers; a member of the staff of the Southern Pacific Hospital; died, October 28, from influenza.

William Breinig Erdman ● Macungie, Pa.; University of Pennsylvania, Philadelphia, 1860; aged 80; a member of the state legislature in 1881 and 1883; for more than fifty years a member and for many years president of the Macungie School Board; one of the organizers of the Lehigh County Medical Society; a specialist on diseases of the eye and ear; died at his home, November 30, from influenza.

Andrew B. Gloninger, Lebanon, Pa.; University of Pennsylvania, Philadelphia, 1883; aged 57; formerly chief surgeon of the Good Samaritan Hospital, and founder and chief surgeon of the Lebanon Sanatorium; surgeon of the Fourth Pennsylvania Infantry during the war with Spain; died in his office, December 3, from heart disease.

Albert Bellingraph Mason, Waycross, Ga.; Atlanta, Ga., College of Physicians and Surgeons, 1909; aged 31; a member of the Medical Association of Georgia and American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; died at his home, December 4, from pneumonia following influenza.

Albert Hayden, Shellsburg, Wis.; Washington University, St. Louis, 1876; aged 67; a member of the State Medical Society of Wisconsin, and a charter member of the Lafayette County Medical Society; local surgeon of the St. Paul System for twenty-five years; died at his home, December 6, from cerebral hemorrhage.



Died in the Service
IN FRANCE
CAPT. JAMES MACFARLAND, M. C.,
U. S. ARMY, 1887-1918
(*See The Journal, last week, p. 2011*)

William Thomas Murphy ● **Lieut., M. C., U. S. Army,** Waukesha, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 38; on duty with the Three Hundred and Thirtieth Aero Squadron; died in a hospital in Grantham, England, November 2, from pneumonia following influenza.

Daniel MacNorton, Yorktown, Va. (license, Virginia, 1885); aged 63; a practitioner for forty years; first collector of customs for the port of Newport News, Va., and once a member of the Virginia state senate and house of representatives; died in the Dixie Hospital, Newport News, November 29.

Joseph S. Gentile, Chicago; Chicago College of Medicine and Surgery, 1913; aged 33; a member of the staff of the Columbus Extension Hospital; who was shot, December 14, by a patient whom he was called to attend; died in the Columbus Extension Hospital the following morning.

James Russell Stewart ● Colorado Springs, Colo.; Johns Hopkins University, Baltimore, 1909; aged 36; secretary of the El Paso Medical Society from 1916 to 1918; a specialist in tuberculosis; died in a hospital in Colorado Springs, December 6, from pneumonia following influenza.

Amos Frank Baumann, Waterloo, Ont.; Trinity Medical College, Toronto, 1885; aged 61; for ten years medical officer of health of Waterloo; a medical director of the Dominion Life Insurance Company since its organization in 1889; died at his home, November 25, from heart disease.

Frank Edgar Simons, Canajoharie, N. Y.; Albany (N. Y.) Medical College, 1879; aged 67; a member of the Medical Society of the State of New York, and president of the Montgomery County Medical Society; died in Canajoharie, October 1, after an operation for prostatic abscess.

George Joseph Spencer, Chicago; University of Illinois, Chicago, 1908; aged 41; at one time a member of the Illinois State Medical Society; city physician of Chicago, in 1911; who was in government service in Albany, N. Y.; died in that city, December 6, from pneumonia.

Clyde Edward Prudden ● **Major, M. C., U. S. Army,** Duluth, Minn.; Northwestern University Medical School, Chicago, 1909; aged 30; a specialist in obstetrics and gynecology; is reported in the *Official Bulletin* of December 2, to have died from disease in France.

Robert Armistead McLean, Berkeley, Calif.; University of California, Berkeley, and San Francisco, 1874; aged 67; at

one time a member of the Medical Society of the State of California; emeritus professor of surgery in his alma mater; died at his home, December 4.

Robert Archibald Gray, Shreveport, La.; University of Louisville, Ky., 1853; aged 88; a member and at one time president of the Louisiana State Medical Association; surgeon in the Confederate Service during the Civil War; died at his home, November 25.

William Sarsfield Morrim ● **Lieut., M. C., U. S. Army,** Fall River, Mass.; Harvard Medical School, 1915; aged 29; on duty at Camp Joseph B. Johnston, Jacksonville, Fla.; while on furlough, died at his home, October 11, from pneumonia following influenza.

Joseph Vincent Kelly ● Philadelphia; Jefferson Medical College, 1868; aged 74; medical director of St. Mary's Hospital and visiting physician to St. Timothy's Hospital; who served in the Navy throughout the Civil War; died at his home, December 6.

Charles LeRoy Griswold, Nanticoke, Pa.; University of Pennsylvania, Philadelphia, 1907; aged 35; a member of the Medical Society of the State of Pennsylvania; died at the Nanticoke State Hospital, October 7, from pneumonia following influenza.

Clarence Howarth White ● **Lieut., M. C., U. S. Army,** Cohoes, N. Y.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1909; aged 30; is reported to have died in a military hospital in France, November 12, from pneumonia.

William H. Moore, Martinsdale, Mont.; St. Louis University, 1905; aged 40; a large ranch owner of Montana; formerly a specialist on diseases of the eye, ear, nose and throat; died in St. Peter's Hospital, Helena, Mont., December 1, from pneumonia.

James Malcolm McKibbon ● **Capt., M. C., U. S. Army,** Buck Valley, Pa.; University of Pennsylvania, Philadelphia, 1899; aged 46; died in Mobile Hospital No. 4, France, October 23, from wounds received while on duty on the fighting line.

Thomas Lindsley Bradford, Philadelphia; Homeopathic Medical College of Philadelphia, 1869; aged 71; author of several books and monographs on hemeopathy; librarian of Hahnemann Medical College; died at his home, December 3.

Benjamin William Carlson ● **Capt., M. C., U. S. Army,** Denver; University Medical College of Kansas City, Mo., 1903; aged 44; on duty at Kelly Field, South San Antonio, Texas; died at that post, November 20, from pneumonia.

William Frank Guilfoyle ● **Lieut., M. C., U. S. Army,** Philadephia; University of Pennsylvania, Philadelphia, 1905; aged 36; on duty with Base Hospital No. 31 in France; after having been gassed, died, September 2, from exhaustion.

Joseph Augustine McGowan, Philadelphia; University of Pennsylvania, Philadelphia, 1899; aged 43; physician to the Church Dispensary Southwark; died at his home, September 7, from carcinoma of the glands of the neck and throat.

Porter Rivolo Bennett, Los Angeles; Bellevue Hospital Medical College, 1879; aged 75; at one time a member of the Medical Society of the State of California; died in Daytona, Fla., November 19, from locomotor ataxia.

William Preston Harden, Bushville, near Commerce, Ga.; Emory University, Atlanta, Ga., 1886; aged 52; a member of the Medical Association of Georgia; died at his home, November 13, from pneumonia following influenza.

John D. Gordon Smith, Zolfo, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; aged 30; a member of the Florida Medical Association; died at his home, October 15, from pneumonia following influenza.

Herbert Ewing Larkins, Charlotte, Tenn.; University of Nashville, Tenn., 1909; aged 40; a member of the Tennessee State Medical Association; died at his home, October 16, from bronchial pneumonia following influenza.

Thomas Tounge Perkins ● Cliftondale, Mass.; Boston University, 1898; Harvard Medical School, 1901; aged 45; a specialist on diseases of the eye, ear, nose and throat; died at his home, December 6, from heart disease.

Herbert Conrad Goings ● Matewan, W. Va.; University of Louisville, Ky., 1896; aged 42; for ten years owner of the Matewan Sanitarium; died at his home, October 14, from bronchial pneumonia following influenza.

L. F. Alfred Ouellet, Orwell, Vt.; Laval University, Quebec, 1894; aged 48; a member of the Vermont State Medical Society; died at his home, October 5, from bronchopneumonia.

Harvey Lasher Thorpe, ● **Capt., M. C., U. S. Army,** Los Angeles; Rush Medical College, 1909; aged 36; who left California, for overseas, October 15, died at sea, November 4, from pneumonia, following influenza.

Romulus Falardeau, Montreal, Que.; Montreal School of Medicine and Surgery, 1908; aged 34; assistant to the surgical clinic of Laval University, and chief surgeon of the St. Justine Hospital; died, October 5.

Albert Marinius Larkin ● **Lieut., M. C., U. S. Army,** Jasper, Minn.; University of Minnesota, Minneapolis, 1917; aged 29; is reported in the *Official Bulletin* of December 2, to have died from disease in France.

Allison Brown, Memphis Tenn.; Memphis Hospital Medical College, 1898; aged 46; at one time acting assistant surgeon, U. S. P. H. S., and on duty at Fort Stanton, N. M.; died at his home in Memphis, November 25.

William Johnston Calhoun ● St. Charles, Ill.; University of Pittsburgh, 1891; aged 56; health officer of St. Charles; local surgeon of the Chicago, Great Western System; died at his home, December 9, from pneumonia.

Samuel Howard Monell, New York City; Bellevue Hospital Medical College, 1890; aged 61; a charter member of the Roentgen-Ray Society of the United States; died at his home, December 3, from pneumonia.

David Frank Hallett, McCool Junction, Neb.; Hahnemann Medical College, Chicago, 1878; aged 63; who was stricken with cerebral hemorrhage while making a professional call, November 23, died, November 30.

John Edward Williams ● **Lieut., M. C., U. S. Army,** Roselle Park, N. J.; College of Physicians and Surgeons in the City of New York, 1913; aged 26; died in Chaumont, France, in August, from paratyphoid fever.

Eugene Van Valkenburgh Riker ● Flint, Mich.; University of Michigan, Ann Arbor, 1887; aged 57; a specialist on diseases of the eye, ear, nose and throat; died at his home, November 25, from pneumonia.

Eliza F. Pottingill, Philadelphia; Womans Medical College of Philadelphia, 1864; aged 77; one of the promotors and visiting physician to the Women's Homeopathic Hospital; died at her home, December 2.

Leech Key Cracraft ● **Lieut., M. C., U. S. Army,** Elm Grove, Wheeling, W. Va.; University of Virginia, Charlottesville, 1905; aged 36; died at his home, November 26, from pneumonia following influenza.

John N. Judy, Petersburg, W. Va. (license, West Virginia, 1901); aged 49; a member of the West Virginia State Medical Association; died at his home, October 27, from pneumonia following influenza.

William Hamilton Young, Starkville, N. Y.; Albany (N. Y.) Medical College, 1899; aged 39; D.P.H., McGill University, 1907; died at his home, October 14, from pneumonia following influenza.

George W. Caldwell, Waggoner, Ill. (license, years of practice, Illinois, 1877); aged 84; for sixty-three years a practitioner of Montgomery County, Ill.; died at his home, November 28.

Alexander Cairns, Coeur d'Alene, Idaho; St. Louis University, 1907; aged 49; who was awaiting commission in the Medical Corps, U. S. Army; died at his home, recently, from pneumonia.

Willoughby Dozier, Nashville, Tenn.; University of Tennessee, Nashville, 1877; aged 75; surgeon in the Confederate service throughout the Civil War; died at his home, November 8.

Edwin James Gravatt, Troy, N. Y.; New York University, New York City, 1891; aged 48; for six years coroner of Rensselaer County; died at his home, December 2, from pneumonia.

Alphonse F. Mercier, Montreal, Que.; Montreal School of Medicine and Surgery, 1894; aged 48; professor of the history of medicine in his alma mater; died, October 24.

Owen Harrison Foringer ● Erie, Pa.; University of Pittsburgh, 1913; aged 32; a specialist in anesthesia; died at his home, October 20, from pneumonia following influenza.

George Elliott Merrick, Pittsburgh; College of Physicians and Surgeons, Baltimore, 1903; aged 45; died suddenly at Newcastle, Pa., November 5, from heart disease.

Henry James Mueller ● Las Vegas, N. M.; Missouri Medical College, St. Louis, 1893; aged 49; died at his home, October 15, from pneumonia following influenza.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GOLDWATER ORDINANCE DEFEATED—ITS PRINCIPLE UPHELD

A Hollow Victory for the Nostrum Interests

On Dec. 31, 1914, the Department of Health of the City of New York revised the Sanitary Code so as to require that on and after Dec. 31, 1915, no proprietary or "patent medicine" should be sold in the city of New York until certain requirements had been met. The requirement was, in effect, that "the names of the ingredients of every such medicine to which the therapeutic effects claimed are attributed, and the names of all other ingredients except such as are physiologically inactive, shall be registered in the Department of Health." The ordinance did not apply to those proprietary or "patent medicines" which already gave the names—not quantities—of the ingredients on the label. This revision of the Sanitary Code—popularly known as the "Goldwater Ordinance"—was made, of course, in the interest of the public health. The ordinance left much to be desired from a public health standpoint, in that it did not require a quantitative formula, and further, in that it permitted an alternative of giving the public the facts. As THE JOURNAL pointed out at the time, if a layman desires to treat his own simple ailments —as he has a perfect right to—he has a right to demand the names and quantities of the drugs he is pouring down his throat.

In spite of its shortcomings, and in spite of the fact that the ordinance was not an onerous one, it was bitterly fought by the "patent medicine" interests. The fight was led by E. Fougera & Co., E. N. Crittenton Co., and H. Planten & Son. The case dragged its way through the courts and finally reached the Court of Appeals of the State of New York, which, a few weeks ago, handed down a decision in the matter. The decision was, in effect, that the ordinance had one real defect, although, as the court pointed out "one that amendment may correct," and that was that it did not protect the rights of dealers who had such preparations on hand at the time the ordinance went into effect. The court held, therefore, that in this regard, the Board of Health had exceeded the power delegated to it.

In discussing the objections raised by the Fougera concern to the ordinance, the Appellate Court said that most of them "we reject as inadequate." Quoting from the opinion handed down:

"The argument is made that the ordinance is an arbitrary exercise of the power of government. We do not think so. Its purpose and effect are well within the limits of the police power. The purpose is the preservation of the public health and safety. . . . The form of protection is publicity. THERE MUST BE DISCLOSURE OF THE TRUTH TO RESPONSIBLE OFFICIALS WHO WILL PREVENT OR PUNISH THE SALE OF FRAUDULENT OR NOXIOUS COMPOUNDS. IF THAT IS NOT A LEGITIMATE PUBLIC AIM, WE ARE AT A LOSS TO KNOW WHERE ONE MAY BE FOUND. It is not important that the ordinance fails to compel disclosure to all the world. Laws are not invalid because they fall short of the maximum of attainable efficiency. Disclosure to all the world, as in Savage *v.* Jones, might make the protection more complete, but it would also make the hardship more severe. Something less, therefore, has been exacted. Disclosure is to be made to the health officers of the city, and to them only. If fraud or other wrong is discovered, then and then only exposure will result. 'NO MAN HAS A CONSTITUTIONAL RIGHT TO KEEP SECRET THE COMPOSITION OF SUBSTANCES WHICH HE SELLS TO THE PUBLIC AS ARTICLES OF FOOD.' IF THAT IS TRUE OF FOOD, IT IS EVEN MORE PLAINLY TRUE OF DRUGS. A danger exists, and the only question is whether the means of correction are appropriate. We cannot say that the means have no relation to the end.

"The public health is safeguarded by disclosure to public officers charged by law with its protection. We are not called upon to approve the wisdom of the ordinance. We stop when we satisfy ourselves that it has a reasonable relation to the end to be attained." [Capitals and small capitals ours.—ED.]

Another argument made by the Fougera concern is that which has been made by the defenders of "patent medicine" interests before, namely, that, by requiring nostrum makers to publish their formula, they would be thus made to give evidence against themselves. THE JOURNAL has before commented on the moral status of a trade which cannot stand publicity—and admits it! In discussing this, the court said:

"The sale of medicines is a business subject to governmental regulation. One who engages in it is not compelled by this ordinance to expose himself to punishment for any offense already committed. He is simply notified of the conditions upon which he may do business in the future. He makes his own choice. To such a situation, the privilege against self-accusation has no just application."

The objection made by the Fougera counsel, also, and one of the stock objections, it might be said, of the "patent medicine" fraternity, that prosecution for misstatement of therapeutic action would be the infliction of punishment for "mere error of opinion" was likewise dismissed by the court as inadequate. So, too, was the alleged objection that the ordinance would conflict with the federal constitution. On this the court's opinion was summed up in the statement:

"The dominant scheme of the ordinance is disclosure of ingredients. That disclosure may be compelled, and the failure to make it punished, without trespassing upon the field which has been occupied by Congress."

From the foregoing it would seem that, while the "patent medicine" interests profess to see in the finding of the court a victory, the victory in fact, rests with the Law Department of the City of New York. The underlying principle of the ordinance was the right on the part of the city to compel disclosure of ingredients. That right the Appellate Court upholds. Further, practically every other objection to the ordinance that was raised by the expensive and impressive array of legal talent employed by the "patent medicine" interests, was dismissed by the Appellate Court as "inadequate"; finally the one weakness which made it necessary for the court to hold the ordinance void, is, as the court records, "one that amendment may correct."

Correspondence

WILL AMERICAN MUNICIPALITIES PROFIT BY EXPERIENCE?

To the Editor:—Now is the time for American small municipalities to rise and demand health protection and pay for it. Thousands of able, educated, experienced young medical officers from the Army, Navy and Public Health Service will soon be discharged or will leave by resignation. Give these young, able men a chance to work as paid health officers in each community of, say, 5,000 inhabitants and above. Pay them living salaries and make them independent from the start. Place them in groups under older officers as supervisors, and let the U. S. Public Health Service do the general supervision and direction of the work so that uniform and advanced procedure may be maintained. Establish suitable, perhaps small, but still well equipped laboratories in some centrally located larger city for bacteriologic and biologic work, and place an efficient officer in charge. Build hospitals.

Have an adequate staff of nurses on hand, not only to supervise the school hygiene, but also to visit and instruct families in their homes, and detect overcrowding in the slums of the city. Arrange self-sustaining, sanitary boarding houses for single men and women; protect the children from the evil influences of star boarders and the like. Segregate tuberculous subjects. Have a social welfare committee regularly appointed and managed by Red Cross staffs to teach the American way of clean living to the foreign born and to see

that pure air and, in winter, heat is supplied the needy, and see that the children are properly clothed. Give the American public the benefit, the experience for which they had to pay so dearly. Americanize the foreigner, by paying more attention to his welfare.

J. F. C. LUHAN, PH.G., M.D., New York.
Acting Assistant Surgeon, U. S. P. H. S.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EXPERIMENTAL NATURE OF INFLUENZA VACCINES

To the Editor:—Can you give me anything definite as to the consensus of opinion of physicians in private practice with reference to the prophylactic and therapeutic vaccines in influenza? My own experience in several hundred cases seems to demonstrate their value, but our health officer has publicly announced that all preventive inoculations are useless. H. A. VENNEMA, M.D., Menominee, Mich.

ANSWER.—An editorial in THE JOURNAL, Oct. 26, 1918, after describing the two main types of vaccine now being used in this epidemic said:

> It will require many more carefully elaborated and controlled observations before anything definite may be learned in regard to the effect of these vaccines, and it is probably safe to say that nothing on which to rely in the future can be learned from the indiscriminate vaccination now going on. There is, therefore, no basis on which promise of protection from vaccines may be made. They may be harmless, and they may or may not be of preventive value.

In other words, at the time the editorial was written, the use of such vaccines was wholly in the experimental stage. Up to the present time there have been published, so far as we know, but two definite reports of adequately controlled experiments on the use of the vaccines. The first of these, that of Barnes (THE JOURNAL, December 7, p. 1899), concerned the use of the Leary vaccine, composed of strains of the influenza bacillus. This work indicated that the vaccine was not of prophylactic value. At the same time practically all of the recent bacteriologic work indicates that the influenza bacillus does not bear a causative relation to the present epidemic.

The second report, by G. W. McCoy, V. B. Murray and A. L. Teeter (THE JOURNAL, December 14, p. 1997), concerned a carefully controlled experiment on the use of a mixed vaccine similar to that brought out by Dr. E. C. Rosenow. The investigation indicates that this vaccine is not efficacious as a prophylactic against the present epidemic.

At this time it may be said that the use of vaccines in influenza is *at best* in the experimental stage, and that carefully controlled experiments exist which indicate that neither of the two main types of vaccines now offered to the profession are efficacious in preventing the spread of the present epidemic.

MARIHUANA, SYNONYM FOR CANNABIS INDICA

To the Editor:—I am told that on the Mexican border the natives make a cigaret out of a plant called Mara Huiwana. The Yaqui Indians are especially noted for this practice, and smoke the cigarets heavily, which results in producing hallucination and intoxication. Will you kindly give me some information concerning this plant? I at first thought it was loco weed, but am now positive that it is not. F. F. YOUNG, M.D., Covington, La.

ANSWER.—In THE JOURNAL, July 6, 1918, p. 60, in answer to an inquiry regarding this drug we said:

> We can find no reference to "maruhuana" or "marajuana" in available works dealing with drugs. According to Squire's "Companion to the British Pharmacopeia" (Edition 19, 1916) marihuana is a synonym in the Mexican Pharmacopeia for cannabis indica. The same name is also mentioned as a synonym for cannabis indica in "Plant Names," by A. B. Lyons (Edition 2, 1907).

Information received since suggests that the name may be applied to a stramonium plant, and that, as is generally the case, the same name is applied by the public to a number of plants. The symptoms mentioned in the query as being produced by smoking Mara Huiwana or marajuana are similar to those produced by the mescal plant, which was fully discussed in an editorial in THE JOURNAL, Jan. 15, 1916, p. 194.

CALCIUM HYPOCHLORITE

To the Editor:—Where can I buy a small quantity of calcium hypochlorite? I enclose clipping from THE JOURNAL.
GEORGE MARTIN, M.D., Elk Mound, Wis.

ANSWER.—The clipping enclosed entitled "Prophylactic Treatment of War Wounds" is an abstract of an article by H. Vincent, *Bulletin de l'Académie de médecine*, 1917, 77, 136, which appeared in THE JOURNAL, March 31, 1917, p. 1009. Vincent gives this formula for the antiseptic powder:

Hypochlorite de chaux titrant 100 à 110 litres de Cl.....10 grammes
Acide borique officinal pulvérisé et bien sec.....90 grammes

The "hypochlorite de chaux titrant 100 à 110 litres de Cl" referred to in the foregoing formula corresponds to the chlorinated lime of the U. S. Pharmacopeia. This is essentially a mixture of calcium hypochlorite and calcium chlorid, and like the product referred to above is required to contain 30 per cent. of "available" chlorin. So far as we know, chemically pure calcium hypochlorite cannot be purchased.

HOME FOR AGED

To the Editor:—I wish to know if there is an endowed home for old men in the United States where care could be had for about $15 or $20 per week. I have a patient 77 years old who is in such condition that he needs a great deal of care and the family cannot pay the $25 per week that the hospitals charge. M.D.

ANSWER.—THE JOURNAL will forward replies to the inquirer.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.
ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.
MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.
NEW HAMPSHIRE: Concord, Dec. 27-28. Sec., Dr. Charles Duncan, Concord.
NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.
NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.
OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.
PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Wauhay.
UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.
WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.
WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

Annual Congress on Medical Education and Licensure

The fifteenth annual conference of the Council on Medical Education will be held at the LaSalle Hotel, Chicago, Monday, March 3, 1919. On the following day, March 4, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges will hold their annual meetings.

The discussions at this conference will be of problems arising from the world war, and will include the "Needs of Medical Education Revealed by the War" and such other topics as military training, hygiene, preventive medicine, condensed courses in premedical education, continuous sessions in medical schools, and other related topics. The discussions will be of interest from the standpoint of both colleges of arts and sciences and medical schools.

Among the speakers will be a number of prominent medical officers, presidents of universities and leaders in medical education.

Peking Union Medical School, Peking, China

The Peking Union Medical School was organized by a group of American and British missionary societies and began active teaching about 1906. It was supported by these societies until in 1915 the property was purchased for $200,000 by the Rockefeller Foundation. The control is now vested in the China Medical Board consisting of seven trustees appointed by the Rockefeller Foundation and six by the missionary societies formerly in full control. New buildings have been planned, several of which have already been completed, the curriculum has been revised, a new faculty has been selected, including ten all-time professors, and an ample endowment has been provided. The institution now offers a three year premedical course entrance to which is the completion of the middle school. This premedical course includes instruction in physics, chemistry, biology, English, Chinese and German. The work of the three years are said to correspond with the last year of the best high schools in the United States and the first two years of the best American universities.

The medical course will not begin until September, 1919. It will cover five years and will be followed by a sixth year to be spent by the student as an intern in a hospital. There will be no graduates under these higher standards, therefore, until 1925.

North Dakota July Examination

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, July 2-5, 1918. The examination covered 13 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1903)	75
John A. Creighton Medical College	(1913)	75.1
FAILED		
Chicago College of Medicine and Surgery	(1916)	62

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Illinois Medical College	(1905)	Indiana
University of Minnesota	(1915)	Minnesota

Connecticut November Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, Nov. 12-13, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 9 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1912)	75.6
George Washington University	(1917)	78.6
Howard University	(1912)	75.6
University of Maryland	(1917)	78
Tufts College Medical School	(1917)	80.3
Fordham University	(1918)	86.6
Long Island College Hospital	(1918)	80.7
University of Pennsylvania	(1918)	76
University of Rome	(1893)	77.3
FAILED		
Tufts College Medical School	(1918)	70.1, 72.1
Columbia University	(1915)	73.2

Iowa Reciprocity Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 1 candidate was licensed through reciprocity at the meeting held at Des Moines, Nov. 12, 1918. The following college was represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Northwestern University	(1917)	Missouri

Book Notices

PSYCHOLOGY AND THE DAY'S WORK. A Study in the Application of Psychology to Daily Life. By Edgar James Swift, Professor of Psychology and Education in Washington University. Cloth. Price, $2 net. Pp. 388. New York: Charles Scribner's Sons, 1918.

There is nothing more interesting than the human mind; and though we realize at times its influence on the most intimate details of our daily existence, we seldom stop to take account of the fact. As Swift says in his opening sentence, "Man's response to situations in the day's work is the measure of his efficiency." This book is not the typical dry as dust text on psychology, but all of the author's points are illustrated by anecdote from experience and from extensive literature which makes the book extraordinarily entertaining.

The first chapter, on organization for mental efficiency, gives attention incidentally to the various medical cults, the psychologic blunders of the German authorities, the penal system, the life of Al Jennings, the noted bandit, and of Patrick Henry, the noted lawyer, and to efficiency in public health. The second chapter concerns thinking and acting. This chapter describes the beginnings of numerous great inventions and the thought that led up to the discoveries. Especial attention is given to the habits of mind of the vivisectionists, and the author shows particularly the "power of empty words to cajole the human mind into placid assent in the conviction that it is thinking."

In the third chapter the author considers habit in the preparation for efficiency, discussing the theory of the formation of habit, the value of habit and its influence for perfect, as well as against perfect, efficiency. Special attention is drawn to the difficulties which great thinkers or discoverers have had in changing the point of view of contemporary men; for example, Harvey with the discovery of the circulation; Benjamin Franklin, with his work on electricity; Oliver Wendell Holmes, with puerperal fever; and incidentally, Galvani, Couvier, La Voisier, Young and Plenciz.

The fourth chapter, on the psychology of learning, relates mainly to the credulity of the human race, the teaching of animals, and the adoption of method, particularly the learning of the touch system of typewriting and the study of golf.

The fifth chapter is on fatigue and its psychology; the sixth, on curiosities of memory, in which especial attention is given to lightning calculators, what occurs in the mind during drowning, crystal gazing, hypnotism and also the training of the mind for permanent memory. Here especial attention is given also to the question of rapid, intensive or prolonged, careful study. The next chapters concern memory and its improvement and then testimony and rumor, the latter devoted especially to legal conditions. The ninth chapter, entitled "Our Varying Selves," is a psychologic study of personality, special attention being given to Kaiser Wilhelm; also to President Wilson, and to numerous characters from literature. The final chapter, on the physiology of digestion, describes the work of Pawlow, discusses the work of Carlson and then considers the general aspects of the influence of the mind on the stomach and vice versa.

The book contains numerous aphorisms which are worthy of especial consideration; for example:

Experience is a filing-case from which man draws reports from his past life.

Every experience is a scientific experiment reduced to its lowest terms.

Unorganized knowledge is only wayward information, unfitted for application because incapable of being combined into a single impulse leading toward a definite conclusion.

It is characteristic of the human mind to be attracted and impressed by the unusual or sensational and to fail to notice events that are daily occurrences.

The basis of a good memory is to discover valid relations, such as those of time, place, similarity and dissimilarity, cause and effect.

Experiments have proved that in general when the average man reports events or conversations from memory and conscientiously believes that he is telling the truth, about one fourth of his statements are incorrect.

The book is one that will pay every physician to read. Too many of us fail to appreciate the practical value of an understanding of the mental processes of the ordinary human being.

Medicolegal

Slight Evidence Suffices for Affirming Conviction of Manslaughter Through Malpractice

(State v. Young (N. J.), 103 Atl. R. 173)

The Court of Errors and Appeals of New Jersey, in affirming a judgment of the supreme court, which affirmed a judgment of conviction of the defendant of manslaughter for causing the death of a woman through malpractice in the performance of a surgical operation on her, she having died on the operating table, says that the argument, elaborately and forcefully addressed to the court of errors and appeals by counsel for the defendant on the merits of the case, could not properly be considered here, where the court deals exclusively with the legal questions presented by the record. It might very well be that the testimony tending to establish the guilt of the defendant was of such meager and attenuated character that, tested by a strict analysis, it was not clearly convincing of the guilt of the defendant; and even though it might appear to the court of errors and appeals that on a motion for a new trial in the trial court such a motion might properly prevail, nevertheless such a situation afforded no legal ground for disturbing the verdict in this case, so long as there was some testimony, no matter how slight, tending to support the finding of the jury. It is only when there is no testimony to support a verdict, and a motion is made for a direction of a verdict of not guilty, and such motion is refused, that such refusal may be properly assigned as error, reviewable here.

In the trial court one of the points made in behalf of the accused was that the removal of two parts of the smaller intestine together with the larger intestine could not possibly have been accomplished with the instruments that were alleged to have been used by the defendant in performing the operation. On the other hand, there was testimony tending to show that, in fact, there was no disturbance of the abdominal tract after death, and that when opened its contents were gone; and there was the testimony of every medical expert, except one physician, that they could not have been removed by the use of the instruments exhibited. The legitimate inference from all this would be that the contents were removed before death, and by some instruments other than those exhibited. On the other hand was the defendant's claim that, in fact, the removal of the contents had occurred after death. The jury evidently adopted the view that the contents were removed before death and by some instrument or instruments other than those exhibited. There was evidence on which to base such finding, and hence it would have been improper for the trial judge to charge, as requested, that there was no evidence whatever to show that any other instruments were used.

Insurer Cannot Be Sued for Malpractice

(Bowers v. Gates et al. (Mich.), 166 N. W. R. 880)

The Supreme Court of Michigan, in this action in tort for alleged malpractice brought against defendant Gates and an insurance company, reverses an order which denied a motion in the nature of a demurrer which the company made asking that the action be dismissed as to it. The court says that, as disclosed by his declaration, the sole tort charged by the plaintiff was that of malpractice inflicted on him by defendant Gates while professionally employed as his physician and surgeon to care for a fractured leg and ankle. The declaration contained two counts. The first one was against defendant Gates for malpractice, directed and exclusively devoted to his alleged lack of skill, malfeasance, and neglect while professionally attending the plaintiff as a physician, and the damaging consequences that the plaintiff experienced. The second count recited that the insurance company had by a described obligation in writing covering the period during which the plaintiff was under the treatment of defendant Gates contracted to hold the latter harmless against claims for damages, etc., wherefore the plaintiff was entitled to recover from the defendants his damages. The contract by virtue of which the plaintiff sought to make the company a party to this action was an ordinary one of indemnity insurance, headed "Physician's Liability Policy," by which the company contracted with defendant Gates to indemnify him against loss for liability imposed on him by law for damages on account of bodily injuries or death suffered by any person or persons in consequence of any malpractice, error or mistake made by him in the practice of his profession, or of any assistant aiding him in the administration of medical or surgical treatment, during the term of the policy. But, as to all the contractual obligations in the policy, the difficulty in seriously considering the plaintiff's theory was that he was in no sense a party to the contract or to the consideration for it. He was a stranger to it, and there was no privity of contract between him and the company issuing the policy. The insurer made no promises to him, did not know him in the transaction, and assumed no obligation for his benefit. Any right of action which might arise out of this engagement was vested in the person to whom and with whom the promise, or contract, was made. No statutory provision and nothing in the contract gave the plaintiff any right of action in tort, or otherwise, against the insurer of the alleged tort-feasor or wrong-doer. The law on that subject is elementary in principle. Nor did the company in fact or effect intervene and become a defendant in appearing, represented by the same counsel who appeared for defendant Gates, and taking on itself the burden of his defense pursuant to its contract with him.

Pneumatic Ambulatory Splint Malpractice

(Vander Wal v. Abbott & Wilcox et al. (Iowa), 167 N. W. R. 382)

The Supreme Court of Iowa in affirming, in this case "not to be officially reported," a judgment for damages for alleged malpractice by the defendants in the reduction and treatment of a fracture of the plaintiff's left leg, says that there was exacted, as the jury was told, that degree of knowledge, skill and care ordinarily had and exercised by the average of the profession in that or similar localities, having regard to the improvements and advances in their profession at the time. The contention of the plaintiff was that the defendants fell short of this measure of skill and care in several respects, and the sole issue presented was whether the evidence was such as to make out a case for the jury. The fracture was an impacted one at the base of the neck of the femur, and extended in an oblique line. It appeared to have extended from the greater trochanter down to and past the lesser trochanter, with a spiral fracture accompanying it below. A pneumatic ambulatory splint was made use of. The entire apparatus was approved by the experts who testified. The fault found was with the manner of the use of the apparatus, the adjustment thereof to the plaintiff's leg, and the attention given thereto. The plaintiff contended that the splint was not adjusted to the leg as it should have been, in that a bolt holding together the upper parts was left out when the bones were set, and the laces of the shoe were loosened, so that the splint did not hold the parts together, so as to be immovable. One of the defendants denied that the bolt was out when he called, but admitted to loosening the lace of the shoe, and asserted that he had drawn the buckle over the foot a notch tighter, which offset the change in lacing. The other defendant, on calling after about thirteen days' absence, remarked, according to the plaintiff, that the leg did not look good to him, and then inquired, "Who unloosened this strap?" and was told that it was done by his partner. Then he inquired, "Where is that screw?" and when told by the plaintiff that it was never in there, put his hand into his vest pocket, remarking, "Here it is; I forgot to put it in; . . . this is one of the essential things" to keep the leg stretched; and he put the bolt in with a screwdriver. The court sets out other evidence, but it says merely enough to show whether the bolt was in place, and whether the shoe was unlaced so as to leave the splint loose was an issue for the jury. And that body was warranted in finding from the evidence that leaving the bolt out or unlacing the shoe would have been improper practice. Evidence in behalf of the defendants tended to show that the instep was very high, and that there was a contraction of the tendon on the

bottom of the foot which tended to draw the foot inward, and it rotated slightly inward. Another physician testified that if the splint had been properly adjusted, and kept adjusted, "you would not expect any disalinement of the foot"; and another one, that "when you have to refracture a limb, you do not usually get as good result." From this evidence the jury might have found that the defendants were negligent in omitting to adjust properly and keep adjusted the splint on the plaintiff's leg in that the bolt was omitted and the lace unfastened, thereby loosening the apparatus from the leg so as not to retain it in alinement, and that in consequence the leg was broken again, causing the plaintiff great pain and suffering. This pain and suffering furnished a basis for damages, even though the result may have been good. But there was evidence tending to show that there was a shortage of the left leg greater than ordinarily results from the setting of the fractured femur, for, though the physicians may have measured, the plaintiff stood in the presence of the jury, and with books under the short leg indicating its condition, the jury might have found from such demonstration that the leg was considerably more than 2 inches shorter than the other leg. That some of the facts may have been established by nonexpert testimony was not objectionable.

Not Barred from Testifying in Insanity Inquest

(In re Hormsen (Iowa), 167 N. W. R. 618)

The Supreme Court of Iowa, in affirming a judgment confirming a finding of the commissioners of insanity of Story County that the appellant was insane and a fit subject for custody and treatment in the hospital for the insane, holds that it was not error to permit a physician to testify to matters concerning which he acquired knowledge while the appellant was in his retreat and being treated by him. The court says that protection was sought by the appellant from this testimony under Section 4608 of the Code of 1897, prohibiting physicians and surgeons from giving testimony concerning matters of which they obtained information in that capacity. The inhibition relates to communications properly intrusted to the physician in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice or discipline. This, however, does not disqualify a physician from testifying as to the mental condition of the patient whom he has attended as he observed it, even though he attended him professionally. The court adds that no communications seemed to have been made to this physician by the appellant as patient to physician. Nor does the court consider that another physician was barred from testifying, in whose case it appeared that he had never been called to treat the appellant professionally, but for twenty-five years had been a member of the commissioners of insanity, and was a member of the commissioners at the time the appellant was examined by the commissioners, and detailed what was said by the appellant at that time and what he observed at that time.

Employer Not Liable for Malpractice

(Congdon v. Louisiana Sawmill Company, Limited (La.), 78 So. R. 470)

The Supreme Court of Louisiana says that the plaintiff sued to recover $5,000 damages against the defendant, and, for cause of action, showed that, while he was in the employ of the defendant, he sought the medical aid of "the sawmill physician of said company" to remove a wart that was on his back, and which had been a source of annoyance to him for some time; that, in endeavoring to remove the wart, the physician applied an acid negligently, poured it on the plaintiff's naked back, and it circled around his body, consuming skin and flesh in its course; that the physician, through negligence or lack of proper knowledge and skill, utterly failed to relieve the plaintiff, etc. In affirming a judgment dismissing the plaintiff's suit at his costs, because he failed to state a cause of action in his petition, the court holds that when an employer employs a physician or surgeon of ordinary skill and ability to attend to his employees, and pays the physician from a fund collected from the employees and from which fund the employer derives no profit, he is not responsible in damages to an employee for mistakes of or malpractice by such physician, particularly, when it is not charged and proved that the employer was negligent in the selection of the physician. A petition for damages in such case should contain allegations of neglect on the part of the employer as to employing a competent physician, and that he derived some profit from the fund contributed by the employees to pay the physician. In the absence of such allegations, the petition discloses no cause of action.

Society Proceedings

COMING MEETINGS

Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.

AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Sixth Annual Meeting, held in Chicago, Dec. 9-11, 1918

The President, DR. CHARLES J. HASTINGS, Toronto, in the Chair

The Etiology of Influenza

DR. WILLIAM H. PARK, New York: We concluded that whether or not the bacillus of influenza was the initiating cause of the present epidemic, it gave evidence that it has a marked pathogenic action, and this seemed to be sufficient reason for us to make a thorough trial of an influenza bacillus vaccine on the prevention, if not of the pandemic, at least of a number of the cases of infection with this bacillus.

The problem of producing immense quantities of vaccine, of determining the best dosage, the time for immunity, if any, to be established, of getting the proper controls in communities not yet infected, and above all of keeping good records and gathering and analyzing them, is one of the most important and staggering of problems.

We began the use of the influenza vaccine after the pandemic had already started, and some groups were not vaccinated until after the peak of the pandemic had been passed; so unless we have been able to get sufficient control cases, that is, presumably susceptible unvaccinated persons, exposed to the same degree, and observed at the same time as the vaccinated persons, we could arrive at no conclusion with regard to the efficiency of the vaccine. The reports from the use of the vaccine are being analyzed now, and it is already apparent that the majority of them are lacking in many essentials.

The intelligent use of the vaccine might have given us strong evidence in regard to the etiologic relationship of the influenza bacillus to the present pandemic; as it is, unless the finished reports prove to be better than they now promise, we must wait for such evidence as may be gathered from a serologic study of the various strains of the influenza bacillus isolated by us from the typical cases and from control cases.

DISCUSSION

DR. E. O. JORDAN, Chicago: In the present outbreak of influenza, conditions have been very different from those of which I have record. Instead of 8 or 9 per cent. of the deaths occurring between the ages of 20 and 40, over 60 per cent. have been of persons between the ages of 20 and 40. Where we find a similar bacteriologic picture in the true respiratory tract infections, it seems fair to suppose that neither the Pfeiffer bacillus, the pneumococcus nor the various varieties of streptococci are responsible alone for these outbreaks. We have in cases of pandemic influenza an infection with an unknown or unrecognized virus which increases the susceptibility of the individual normally to infection with the various pathogenic respiratory tract organisms, and superimposed on the initial infection we have a variety of secondary infections.

DR. J. W. NUZUM, Chicago: As regards the use of vaccines in influenza, we have seen some cases of the disease developing after the first injection of the vaccine, and we know of instances occurring after three injections of the vaccine; but we do not care to venture an opinion until we have been able to do considerable control work.

We have been impressed with the frequency of empyema in these cases. In our wards at the Cook County Hospital we have had from fifty to a hundred cases with empyema, and the predominating organism is the hemolytic streptococcus, a late secondary invader.

Dr. William H. Stokes, Baltimore: We have found the streptococcus and the pneumococcus, Types II and IV, in about 10 per cent. of the cases, both at necropsy and in the sputum; we also found the influenza bacillus.

Lieut.-Col. James G. Cummings, Washington, D. C.: In a series of 100 specimens, we have found only 12.4 per cent. of influenza bacilli. In 27.6 per cent. we have found the hemolytic streptococcus, in 90 per cent. Group IV pneumococci. We have found a low percentage of the fixed types of pneumococci. We have likewise found about 20 per cent. of *Micrococcus catarrhalis*, and a few staphylococci.

Dr. Ludvig Hektoen, Chicago: I think we must be dealing with a disease of unknown etiology, complicated by secondary infections of different kinds depending on local conditions in different parts of the country.

Dr. M. J. Rosenau, Boston: In the first twenty-six or more necropsies we recovered the influenza bacillus described by Pfeiffer in 83 per cent. of the cases examined. We also found it in pure cultures in the lungs of the fatal cases in a number of instances. In the remaining 70 per cent. fatal pneumococcic cases we failed to find the influenza bacillus. These patients died of croupous pneumonia due to Types II and IV of the pneumococcus, and in a few instances of the hemolytic streptococcus.

Dr. William C. Woodward, Boston: What has been the prevalence of the various kinds and strains of streptococci and pneumococci in the civil population prior to the appearance of influenza, and what has been the relative prevalence of these particular organisms among groups of persons in infected communities who have not had the disease?

Dr. William D. Stovall, Madison, Wis.: Unless a vaccine is made by growing the type in pure culture and mixing the types according to the organisms present, a vaccine of definite value probably cannot be obtained, because the mediums favorable to the growth of the pneumococcus cannot be favorable for everything. One type may overgrow the other. If they are grown in pure culture one may get definite effects from each type.

Dr. H. W. Hill, St. Paul: There is a prevalent belief among a great many people that relatively few tuberculous persons have escaped influenza. I should like to know the experience of the members in regard to tuberculosis and influenza.

Dr. J. O. Cobb, U. S. Public Health Service, Chicago: At Fort Stanton, N. M., they have had a very decided outbreak of influenza, with 149 cases out of 300 tuberculous patients, with 18 per cent. of deaths. The cases are identical with our present epidemic, and the patients died just as promptly at the government sanatoriums there as they did elsewhere.

Dr. William H. Park, New York: In the East we have had very little influenza complicated by empyema, but in different parts of the country there have been important and different secondary complicating organisms. In our own hospitals in the East we have only had one case of empyema in some sixty deaths.

As to the prevalence of the influenza bacillus in the cases prior to this outbreak over other organisms, I will say that the influenza bacillus has been present in the East in a great many cases in this epidemic. Every person with whooping cough seems to have the influenza bacillus.

Prophylactic Inoculation in Pneumonia and Influenza

Dr. Edward C. Rosenow, Rochester, Minn.: By the use of a properly prepared vaccine it is possible to afford a definite degree of protection for individuals, including pregnant women, during an epidemic of influenza. There is no noticeable increase in the number of cases immediately following the inoculations, and protection lasts for a period of at least six weeks. The favorable results from inoculations indicate that these so-called secondary invaders, which appear to have exalted and peculiar infecting powers, bear a close etiologic relation to epidemic influenza. This relation, however, may be in merely favoring the invasion of an unknown virus. Nearly all physicians report that the attacks of influenza are milder and of shorter duration, and that convalescence is more rapid in inoculated patients as compared with uninoculated individuals. The tendency of infection of the lower respiratory tract to develop pneumonia is noticeably less in the inoculated. According to the evidence at hand, the prophylactic vaccinations have conferred a decided immunity in pregnant women. This infection has proved very fatal among the uninoculated of this class.

Discussion

Dr. George W. McCoy, Washington, D. C.: See the article on "The Failure of a Bacterial Vaccine as a Prophylactic Against Influenza," The Journal, Dec. 14, 1918, p. 1997.

Dr. Timothy Leary, Boston: In the treatment of influenza with an autogenous vaccine of mixed strains of influenza bacilli grown on human blood agar, we started on a local piece of work with our students and nurses in certain institutions which were receiving the first cases of influenza, and in which the incidence and mortality were very high. The results indicated definite value, and we proceeded from that to offer the vaccine for immunization to physicians and nurses generally. Again, the reports came back distinctly favorable, and if the agent is of definite value it seems to me that its use should be spread. We have as yet no definite information on which to draw final conclusions.

Dr. F. O. Tonney, Chicago: The ratio of influenza patients developing pneumonia in the unvaccinated of industrial groups studied was 1 in 21, while in the vaccinated it was 1 in 184. The ratio of influenza cases terminating fatally in the unvaccinated of the industrial groups in Chicago was 1 in 408, and in the completely vaccinated there were none in the 1,201 cases reported.

The influenza in vaccinated individuals occurred almost exclusively in those who had received one vaccination. No bronchopneumonias or deaths occurred in the vaccinated group after the second or third vaccination. The number of severe local reactions following vaccination was at the rate of 3 per thousand, and of severe constitutional reactions at the rate of 2 per thousand. These results are incomplete, but we offer them for what they may be worth.

Dr. J. J. Moore, Chicago: We have found hemolytic streptococci in the sputum, bronchi, lungs and especially, as Dr. Nuzum has said, from the pleural complications of this disease.

Dr. W. O. Sherman, Pittsburgh: At the Homestead plant, there were 1,687 of the employees who were not inoculated; 588 of those, or 30 per cent., contracted the disease. The number of deaths was forty-two, a percentage of 2.5. There were 5,964 who received one inoculation; of these, 213, or 3.5 per cent., developed the disease. There were nine deaths among these, or a percentage of 1.5; 5,222 received two inoculations, and 174 developed the disease, or a percentage of 3.2 with four deaths. The death rate was 0.08. There were 4,720 that received three inoculations; sixty-six of these, or a percentage of 1.4, contracted the disease. There were no deaths in those with three inoculations. There were 4,007 who received four inoculations at the one plant, and these data are accurate; 108, or 2.8 per cent., contracted the disease, and there were two deaths, giving a death rate percentage of 1.05.

Admiral E. R. Stitt, Washington, D. C.: We have been successful at the Naval Hospital, as they have in Boston, in treating postinfluenzal pneumonias with the serum of convalescents, and a very interesting thing in connection with trying out the serum of some of the convalescents is the potency of the serum therapeutically. It seemed to be almost a specific. I had the laboratory workers in the Naval School try out immunity reactions with this potent serum, which we knew was potent from treating different cases. There was no evidence that this serum possessed any antibodies for various strains of influenza bacilli.

Col. Victor C. Vaughan, Washington, D. C.: Before a barracks was built for the accommodation of our soldiers, Surgeon-General Gorgas understood thoroughly that the dis-

eases we should have to deal with would be the respiratory diseases, as we call them. It is not generally known, but it is true that of all the diseases that General Gorgas had to deal with on the Canal Zone, neither malaria nor yellow fever was the most difficult. It was pneumonia. He knew how to prevent yellow fever and malaria, but he did not know how to take care of pneumonia. Three of us, with Surgeon-General Gorgas, went to the Secretary of War before there was a barracks built, and we told him that the diseases we should have to deal with would be pneumonia and kindred diseases, and we asked that sufficient space be provided in barracks for the men. The Secretary of War was highly appreciative of what we said and ordered it done. I want to say that with respect to crowding in our armies, I have come to realize that in the Army, especially in our camps, crowding in barracks is of very little importance compared with crowding under other conditions. When men are in the barracks and are asleep, they are not coughing, they are not sneezing, or doing anything of that kind. Most of them are asleep. It is when they are assembled in a large hall that trouble comes. At Camp Forest there were 9,000 people in a hall, for instance, and if every individual was perfectly upright, inclining his head neither forward nor backward, and the noses of these people were within 16 inches of one another, that being the greatest distance laterally, or 26 inches, with coughing and sneezing violently, you can readily understand what the condition of the atmosphere must have been, and it would have made but little difference if that building had had no roof and no walls to it. You can crowd men outdoors, and while they are outdoors you can crowd them just as much as when they are indoors; and I must say that this was something I had never thoroughly appreciated.

One word with reference to pneumonia, before we come to influenza: We had a splendid record for the first six months of the war. We had a death rate but little above that of the same age group at home; and thirteen out of the twenty-nine large cantonments had a death rate lower than the same age group at home. The Illinois division at Waco, Texas, had a death rate in the first six months of the war of less than one half of what occurred during the same time among the same age group in the city of Chicago, because they were selected men. You remember that the infectious diseases, especially the respiratory diseases, kill 40 or more per cent. men than women, and all these were men. So it is a wonderful record, and the same is true of New York, Pennsylvania, Ohio and various other organizations.

So far as pneumonia is concerned, during the first six months these facts seemed to be established so far as figures can establish anything: The city boy lived, the country boy died; the Northern boy lived, the Southern boy died. Whether these two are exactly the same or not, I do not know. Of course, the rural population is greater in the South.

Influenza—clinical influenza—struck our camps last February. It has been written up by Major Soper, and the report was published before the present epidemic of influenza came. It possessed all the clinical features of influenza that have existed this fall. At Camp Forest it came as it came on Camp Devens last fall, like a thunderbolt out of a clear sky, and prostrated a large number of people, and it was not followed by pneumonia. There were no deaths. Normally deaths did not increase as a result of it. We were on the outlook for influenza all the while. The first intimation we had in the Surgeon-General's Office of influenza's threatening this country came in August. A steamship on its way across the ocean from France was struck by influenza, and it was so badly hit that all of the seamen were prostrated and it had to put into Halifax before it could proceed to New York. We had that warning in August, and when this steamer reached New York it was thoroughly disinfected, and all this time this procedure was carried out at New York and Newport News: All troops ordered to France were sent to Hoboken and to Newport News and held in quarantine fourteen days. Every man was examined and his temperature taken once every day. No man with any elevation of temperature was allowed to go on board. As the men went on the boat in single file they were examined; the examinations were made daily, and if the men were found with elevation of temperature or signs of illness they were sent back home. We were looking for influenza of the virulent type at Newport News and New York, but influenza did not occur in New York, nor did it come into New York; it came in Boston. It may be a mere coincidence, there may be something more in it, but the influenza in 1899 entered the port of Boston. I think I can say with reasonable certainty that this influenza epidemic came into Boston Harbor, was landed at the Commonwealth Pier, struck Boston and Camp Devens only a few miles from Boston, spread from Camp Devens all over the country, and has traveled rapidly ever since. There cannot be any question as to how influenza travels; it travels on two legs, and man is the carrier.

I went to Camp Devens as soon as the epidemic was reported, and I might say that I thought my eyes would never see such horror as I saw there. I went through the Spanish-American War; I saw thousands and thousands of cases of typhoid fever, but I never had anything so depress me as the conditions that existed at Camp Devens.

Unfortunately, it has been almost impossible for us to study influenza. Why? Because men were dying from pneumonia, and we cannot spend the time to examine the blood of patients with influenza when so many people are dying from pneumonia. We are going to have influenza with us; it is not going to disappear very soon. I do not want to be a pessimist; I am always an optimist.

The second year of the epidemic of 1899 showed more deaths from influenza than the first year, and we are going to have the influenza epidemic for some time to come. Let us make a study of influenza as well as of pneumonia. Let us find out what is the cause of influenza. If I were asked to define influenza, I should say it is a disease of unknown origin, characterized by a marked leukopenia, and I am sorry that that has not been studied more carefully. As a result of the leukopenia the gateways of invasion are open, and any micro-organism that is lying around may invade the lungs if it is capable of growing and multiplying there.

So far as pneumonia is concerned, I am convinced that any micro-organism that will grow and multiply in the lungs may cause pneumonia. It is not the pneumococcus or streptococcus alone; it is not the Pfeiffer bacillus or the Friedländer bacillus alone. Any organism that may grow and multiply in the lungs will cause pneumonia. One man who studied pneumonia at Camp Devens came to the conclusion that the influenza and pneumonia were due to the Pfeiffer bacillus. Another man equally competent who studied it here at Camp Grant said it was due to a pneumococcus; another man studying it somewhere else said that it was due to the streptococcus, and so on. We can say, I think, with a great deal of certainty that influenza is very much like measles in this respect. It takes away resistance; and the organism that takes advantage of this is the prevailing organism in that community. We have streptococcus pneumonia; we have Friedländer's bacillus pneumonia, and so on. It has been observable all the way through this epidemic, and it has been mentioned in other epidemics of pneumonia following influenza, that it kills the strongest and most vigorous. Typhoid fever is more prevalent in men than in women and more prevalent in young women than among old men, because those people have the greatest range of activity. The man who is in a hospital, or the man who is on scout duty, is drinking water here and there. The greatest mortality was highest among the strongest and most vigorous because these have the greatest range of activity.

The death rate is higher in the civilian population between 20 and 40 years of age. Of course, in the Army we have only those between 20 and 45 years of age, and we have most susceptible material. We have been trying to find out what we could about this, and we calculate that these figures may not be exactly right. In Richmond, Va., for example, of the inhabitants between 20 and 40 years of age, there was one in six times as many deaths as had occurred. So we compared the death rate of all the inhabitants between 20 and 40 years of age with the death rate in the civilian population according to the number of those between 20 and 40 years of age. Here is the point: These diseases find suitable material between 20 and 40 years of age. I did not quite believe this, and there is

an easier explanation than that. I think it is like typhoid fever, and that is, people between 20 and 40 years of age herd together, and on the whole the people who crowd together are the people between 20 and 40 years of age, either in military or civilian life. I want to exclude the possibility that there may be greater susceptibility at that age. Some say the older people have had it, and have asked why the younger people do not have it more. I will not go into that phase of the subject.

In the civilian population there are going to be recrudesences of it. Whether there are going to be recrudescences in the camps or not, I do not know. From a scientific standpoint, it is unfortunate that our camps are soon to be dissolved. We should like to know about this. We have been trying to distinguish between relapses and recurrences. We find a small number of people who have had influenza without pneumonia, who have thoroughly recovered, who have been apparently perfectly well from two to three weeks, and then they have come down again with all the original symptoms just as though they never had it. There is a larger number who think they have not entirely recovered. These were relapses, and we are trying to distinguish between recurrences and relapses. You cannot put any trust at all in the figures. In some places they call everything influenza if a man sneezes once or twice. In other cases they call it influenza pneumonia. In one camp there was an order that nothing should be called influenza unless the Pfeiffer bacillus was found, so we cannot tell how many cases existed in any camp in the United States. We can give the figures as they are put in, but we cannot tell what the percentage of influenza cases with pneumonia was. One thing that is certain is death. The diagnosis of death is certain. There is no question about that. We are figuring out that a certain percentage in this cantonment or this camp, etc., died.

So far as the prevention of the respiratory diseases is concerned, we do not know anything more than our ancestors knew a hundred years ago, and we may as well admit it. I say that in the face of the greatest pestilence that has ever struck our country we are just as ignorant as the Florentines were with the plague described in history. Now that the war is over and we have whipped the Hun, it devolves on the medical profession to work hard over the respiratory diseases, and see what we can do for them, and we must not stop until something of great value is done.

DR. J. O. COBB, Chicago: We should like to hear the incidence among the vaccinated in the Army with lipovaccines.

COL. VICTOR C. VAUGHAN, Washington, D. C.: We have tried with the greatest thoroughness the vaccines for influenza. We have used influenza vaccine in great quantities, all they could make in the Army Laboratory, and have used all that Dr. McCoy could spare, and also have used that which Dr. Park has furnished us from the New York laboratory, and I do not hesitate to say that it has not done one bit of good. Speaking on this point with the evidence of the Pfeiffer bacillus not being the cause of influenza, I can agree with those who have spoken. To me the evidence that the Pfeiffer bacillus is the cause of influenza is not at all convincing, because, in the first place, it is by no means constantly found in the influenza or the sequelae. In the second place, it is often even with greater frequency found in other diseases than it is in influenza. In the third place, influenza is characterized by a marked leukopenia, a matter that must be investigated more thoroughly. Injection of the Pfeiffer bacillus causes a leukocytosis, just the opposite, so I think the weight of evidence at least is against the Pfeiffer bacillus as being the cause of influenza. Besides, the first evidence that we had in the Army that virulent influenza was spreading through the world was the news we got in August that during the month of July influenza was exceedingly deadly in Germany. It was rife in Germany and caused a very high death rate. In July two conferences were called, one at Berlin and one at Munich, and Pfeiffer himself could not demonstrate in a large number of cases the Pfeiffer bacillus, and as you know, the general finding was a diplopneumococcus.

So far as vaccination against pneumonia is concerned, we have encouraging results, not, however, overwhelming, but encouraging results, concerning vaccine for pneumonia. At Camp Upton last year some 12,000 out of 30,000 men were vaccinated with lipovaccines of Types I, II and III. They were under observation six or eight weeks, after which they went overseas, and there was much less pneumonia among them. The report has been published by Major Cecil and Major Austin, and it was less during that six or eight weeks than it was among the unvaccinated. Since August, Major Cecil has vaccinated 80 per cent. of the troops at Camp Wheeler, about 15,000 or 16,000 troops altogether. He has vaccinated 80 per cent. of the troops that have been coming in all the time. They began at Wheeler with 4,000; then they came in bunches of several hundred. The latest report I had from Major Cecil, a day or two ago, was to the effect that there was practically the same number of cases of pneumonia among the vaccinated as among the unvaccinated; in other words, that there was just as much pneumonia among the 20 per cent. unvaccinated as there was among the 80 per cent. vaccinated. The pneumonias that did prevail were altogether of Type IV.

I agree that we should approach this subject with an open mind, ever ready to accept facts; but let us know they are facts before we accept them.

When it was decided to try vaccination, it was perfectly understood that this vaccination is not compulsory, and that every time an individual was vaccinated or had to be vaccinated he should be told that it is not compulsory. We have said to the men, "You can do as you please; we do not know whether it will protect you against influenza or pneumonia or not. It is an experiment." There is no compulsory vaccination at Camp Wheeler or anywhere else for pneumonia or influenza. There is compulsory vaccination for typhoid fever, but we are not justified in making any vaccination compulsory until we have overwhelming evidence of its value; and any man, whether he be in private life, in the Army or in the Public Health Service, who vaccinates anybody for pneumonia or for influenza and tells him that it is going to prevent the disease is not telling the truth.

With reference to the mask, I am strongly of the opinion that we have overestimated its value. That is nothing against the mask, however. When I went to Camp Devens they were not using the mask. I called the doctors together and I simply said, "Shall we use the mask or not? It is not compulsory." But I said, "Every doctor who took care of cases of pneumonic plague and did not wear a mask died from it, and every man who cared for pneumonic plague cases and didn't wear a mask did contract it. You can do as you please."

I am pretty certain, not convinced, that hand to mouth infection is of more importance than droplet infection. The most frequent way in which respiratory diseases are conveyed from one to the other is by hand to mouth. I feel that we should at least think of this in order to make an effort to prevent the spread of the disease.

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Our experience has been that there are no dependable data thus far relative to the value of vaccines so that their use can be recommended. I could mention a dozen communities as examples where the epidemic of influenza was apparently snuffed out just as efficiently with the measures we used as in those communities where the vaccine was used.

DR. G. H. WOOD, Detroit: There have been some very severe reactions, some marked depressing effects from the use of vaccines in influenza. A safe rule to follow is not to give more than one half of the dose recommended at the beginning, then watch the patient, and increase the dose as the results warrant.

DR. EDWARD C. ROSENOW, Rochester, Minn: We cannot solve the problem of influenza or any other problem regarding the management of disease unless we try out experimentally certain methods. I have watched the occurrence of this disease through my section of the country, and for me to sit down quietly and do nothing was impossible. I stopped very vital work of other kinds to try and do something for my countrymen.

(To be continued)

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY

Ninth Annual Meeting, held at Chicago, Dec. 3-7, 1918

The President, MRS. WILLIAM LOWELL PUTNAM, Boston, in the Chair

Public Health Service Program for the Nation Wide Control of Venereal Diseases

LIEUT.-COL. C. C. PIERCE, U. S. S. P. H. S., Washington, D. C.: Venereal disease is a problem which affects not only the soldier and the sailor, but also the civilian of today and tomorrow. Section 6 of the act to control venereal disease passed by Congress provides for the allotment to state boards of health of $1,000,000 each year for the two fiscal years beginning July 1, 1918, for the fight against venereal diseases. For the second of these two years the payment of the state's allotment is conditioned on the expenditure of a like amount by the state in the prevention of venereal diseases. For the first of these two years this condition is not imposed.

1. State boards or departments of health receiving their respective allotments have to agree to these cooperative measures: (*a*) Venereal diseases must be reported to the local health authorities in accordance with state regulations approved by the U. S. Public Health Service. (*b*) A penalty will be imposed on physicians or others required to report venereal infections for failure to do so. (*c*) Cases are to be investigated, so far as practicable, to discover and control the sources of infection. (*d*) The spread of venereal diseases should be declared unlawful. (*e*) Provisions are to be made for the control of infected persons that do not cooperate in protecting others from infection. (*f*) The travel of venereally infected persons within the state is to be controlled by state boards of health by definite regulations that will conform in general to the interstate regulations to be established. (*g*) Patients are to be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. The Division of Venereal Diseases details to each of the various state boards of health an officer of the Public Health Service in uniform. His work is directed jointly by the Public Health Service and the state board of health. The general plan of work for the state bureau is: (*a*) The securing of reports of venereal infectives from physicians. (*b*) Suppressive measures, including the isolation and treatment in detention hospitals, and establishment of free clinics. (*c*) The extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of conditions before patients are released as noninfectious. (*d*) Educational measures, which include informing the general public, as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and measures to combat them. (*e*) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. (*f*) The keeping of accurate, detailed records of all the activities of the venereal disease work, copies to be forwarded to the U. S. Public Health Service.

3. Local or legislative funds that may be available shall be used by the state or city health authorities having jurisdiction for extension of the work.

4. In extension of the educational measures, the state's health authorities and its bureau of venereal diseases shall exert their efforts and influence for the organization of a state venereal disease committee for furthering the comprehensive plan for nation-wide venereal disease control.

5. The state health authorities shall take such measures as may be practicable for the purpose of securing such additional legislation as may be required for the development of control of the spread of venereal infections.

6. The state allotment shall be expended along general standard lines for all states and in accordance with an accounting system, to be forwarded by the interdepartmental social hygiene board, approximately thus: (*a*) For treatment of infected persons in hospitals, clinics and other institutions, including arsphenamin and other drugs, 50 per cent. of the allotment. (*b*) In carrying out educational measures, 20 per cent. (*c*) In carrying out repressive measures, 20 per cent. (*d*) In general administration and other activities of venereal disease control work, 10 per cent.

This distribution is provisional and subject to modification after conference and agreement between each state and the U. S. Public Health Service to best meet the needs of the particular state.

During the 609 clinic days represented, there was a total of 25,224 visits to the clinics, with an average daily attendance of 41.09 at each clinic. During the past month, 2,301 new cases were admitted. November 15, there were 11,149 cases remaining under treatment; 28,981 treatments were administered during the month; 2,777 doses of arsphenamin were administered to syphilitics. A total of 2,933 prostitutes were treated in the clinics, detention homes and jails. Of the prostitutes placed in detention during the month, 812, or 98.5 per cent., were found to be infected with venereal disease.

DISCUSSION

DR. JOHN M. DODSON, Chicago: The west Australian type of ordinance has been adopted in Chicago for the reporting of venereal diseases. The ordinance does not permit of reporting the name of the individual, but the case is reported by number by the physician, and it is made compulsory that he report it with the understanding that if the patient fails to keep himself under proper treatment, his name shall be reported and proper steps taken to see that he is kept under treatment until he is not a menace to the community.

DR. EDWARD P. DAVIS, Philadelphia: I desire to call attention to an apparent danger in the management of syphilitic cases. Since our knowledge of the cause of syphilis is now very evident, it was formerly considered that a woman giving birth to a syphilitic child could nurse the infant without infecting herself, and that the normal relationship of the nursing mother to the child could be maintained. It is now known that the reason a syphilitic infant does not infect the mother is that the mother is latently syphilitic. It is the duty of physicians and nurses having under observation women bearing syphilitic children to see to it that those women are kept under observation to prevent the development of syphilis.

Syphilis and Its Relation to Infant Mortality

DR. P. C. JEANS, St. Louis: When conception has taken place, the effect of maternal infection on the product of conception is dependent to a large extent on the duration of the pregnancy at the time of fetal infection. The infection of the germ cell, if such an event ever occurs, would preclude the possibility of its further development. The earlier in pregnancy the infection of the fetus takes place, the more likely is pregnancy to terminate in a dead or nonviable infant. The birth of a viable syphilitic infant signifies its infection late in pregnancy. The time at which fetal infection occurs is dependent on the activity of the infection in the mother, and this in turn is dependent to a large extent on the time that has elapsed since the onset of her infection. In many instances, in untreated mothers, pregnancies occurring ten years or more after the infection of the mother have resulted in the birth of nonsyphilitic children. A compilation of statistics shows that of 4,148 pregnancies in syphilitic families, 1,258, or 30 per cent., resulted in the death of the fetus at or before term. That this is more than three times greater than what might be considered the normal waste of life at this early age is shown by a similar study among the poorer class in both St. Louis and London, and including no obvious syphilis. In St. Louis, 9.9 per cent. of 886 pregnancies, and in London, 9.4 per cent. of 826 pregnancies resulted in the death of the fetus at or before term.

In St. Louis, clinical study was made of 854 infants of 1 year or under, and Wassermann reactions were made on all infants whose family history, personal history or examination gave any suspicion of syphilis. Of the 854 infants studied, forty-two, or 4.9 per cent., were found to be syphilitic. This figure represents the minimum in this group because it was not a complete Wassermann survey. In New York, Holt found 6.2 per cent. of positive Wassermann reactions among 161 infants under 2 years of age. Holt's series was selected

to the extent that it contained no cases of clinical syphilis, but did contain a certain number of infants whose history or examination gave a suspicion of syphilis. Comisky reports 3.2 per cent. of positive Wassermann reactions in 1,074 newborn babies in Brooklyn. Because of the frequency of a negative Wassermann reaction in a syphilitic new-born baby, such a study, though interesting, does not represent the true incidence of syphilis. It would seem safe to assume an incidence of about 5 per cent. for syphilis in our infant population. A survey of about 300 syphilitic families in which there occurred 1,366 living births shows that 30 per cent. of these infants died at an early age.

From 10 to 20 per cent. of adult males and about 10 per cent. of married women are syphilitic, and a minimum of 10 per cent. of marriages involve a syphilitic individual. Seventy-five per cent. of all the offspring in a syphilitic family are infected. In a syphilitic family, 30 per cent. of the pregnancies terminate in death at or before term. Thirty per cent. of all infants born alive in a syphilitic family die in infancy, as compared to a normal rate of 15 per cent. in the same class. Probably 30 per cent. of clinically syphilitic infants die as a result of syphilis. Only 17 per cent. of all the pregnancies in syphilitic families result in living non-syphilitic children that survive the period of infancy. About 5 per cent. of our infant population is syphilitic. According to St. Louis vital statistics, 3.5 per cent. of all infant deaths are ascribed to syphilis.

The City Nurse as an Agent for the Prevention of Infant Mortality

DR. HARRIET L. HARTLEY, Philadelphia: In the matter of determining with some degree of accuracy the health of a given district or locality, we have no better or more intelligent surveyor than the city nurse. Her experience has brought her into contact with all kinds and conditions of men. Her method of approach to the keeper of the home, usually the mother, is one that breeds friendliness and confidence. An understanding of the true condition of the home and its inmates is arrived at from a standard point of view with a minimal waste of time. The city nurse, with her general training as a nurse, knows the earmarks of disease. As a public health nurse, she readily recognizes poverty, destitution and alcoholism. She can judge whether the family income is large enough or expended in such a way as to insure the proper amount of health and comfort to the family. Her connection with the board of health makes her an authorized sanitary inspector, and her general knowledge of the principles of housing and sanitation makes her a good judge of the conditions surrounding the young infant. She can intelligently observe the care of the food, the refrigerator, utensils, etc., which either intimately or remotely affect the health of the baby. She also brings into use her knowledge of ventilation, and readily determines whether the baby gets the proper ventilation to guard it against respiratory disease. In prenatal work the city nurse has no peer. The expectant mother is much more apt to confide in the nurse who gives advice about babies than she is any other type of health worker. The nurse often learns of the pregnancy early in its history, becomes the mother's friend and confidante, and leads her in the direction she should go.

Problems of Infant and Maternal Welfare in Rural Communities

MISS KATHERINE M. OLMSTED, Chicago: The existence or development of a well and a broadly organized public health nursing section in every state health department is the first and the most important need in any movement for better care of our rural health conditions. The obligation of this department should be: 1. To stimulate local county demand for public health nursing service and secure public funds for maintenance of work in counties. 2. To provide well trained, competent nurses to meet the demand. 3. To coordinate and supervise the work of all the nurses throughout the state, much as is done with the county health officers now with a view to standardizing fundamentals and stimulate the tendency toward a higher type of public health nursing in rural sections.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of the Medical Sciences, Philadelphia

November, 1918, 156, No. 5

1 *New Diagnostic Sign of Foreign Body in Trachea or Bronchi. C. Jackson.—p. 625.
2 *Demonstrating Tubercle Bacilli in Urine. E. M. Watson.—p. 636.
3 *Blood-Pressure and Kidney Function Findings in Orthostatic Albuminuria. E. H. Mason and R. J. Erickson.—p. 643.
4 *Fractional Estimation of Stomach Contents. III. Effects of Hydrochloric Acid Therapy on Acid Titer of Stomach During Digestion. B. B. Crohn.—p. 656.
5 *Autoserotherapy in Tuberculous Pleurisy, with Effusion. J. C. Lyter.—p. 665.
6 *Relation of Housing to Pulmonary Tuberculosis: Report on 36,062 Cases. F. F. D. Reckord.—p. 670.
7 Focal Infections in Childhood. S. Blum.—p. 681.
8 Comparative Value of Radium and Roentgen Radiation. R. H. Boggs.—p. 690.
9 *Influence of Radium Water Therapy on Creatinin and Uric Acid Metabolism in Chronic Arthritis. F. H. McCrudden.—p. 702.
10 *Anatomy of Coronary Arteries. F. M. Smith.—p. 706.
11 Fat Redistribution in Hypophyseal Type of Dystrophy Adiposogenitalis. H. G. Beck.—p. 711.
12 *Complement-fixation in Hodgkin's Disease and Allied Affections. H. T. Kristjanson.—p. 720.
13 *Hypothyroidism in Recruit. H. Brooks.—p. 726.
14 Effects of "Mustard Gas" on Eyes. G. S. Derby.—p. 733.
15 Influenza Epidemic in Soldiers. S. Bradbury.—p. 737.

1. The "Asthmatoid Wheeze": An Intrapulmonary Foreign Body Sign.—The presence or absence of the asthmatoid wheeze has been recorded by Jackson in sixty-two cases of intrabronchial foreign body, therefore he is inclined to regard this sign as of great value in many cases in which the foreign body is not opaque to the roentgen ray. He has called this new sign the asthmatoid wheeze because the sound is somewhat similar to the wheezing heard when the ear is placed to the open mouth of an asthmatic patient. The chief difference is that there is more or less association of the sounds of râles with the wheezing in asthma, while in the asthmatoid wheeze of the foreign-body case the sound is drier, when typically elicited, though it may be associated with more or less secretion, adding more or less of the sounds of bubbling. In a typical case the wheeze is much more marked after the coughing out of all secretion than before.

2. Demonstrating Tubercle Bacilli in the Urine.—In studying numerous specimens of urine for the presence of acid-fast organisms in various conditions of urogenital tuberculosis, Watson found that one important factor not previously given much attention is to use large amounts of urine, also to keep the specimen in the original container until the final sediment is obtained and to centrifugalize thoroughly.

3. Blood-Pressure and Kidney Function Findings in Orthostatic Albuminuria.—Five cases of orthostatic albuminuria, four of which are quite typical, were studied by Mason and Erickson especially as to pulse-pressure and kidney function when in different positions. They believe that the condition of orthostatic albuminuria is a general systemic disturbance, manifesting itself in faulty development, as shown by a general visceroptosis, a "drop heart," a generalized muscular and visceral atonia, which is known to be associated with varying degrees of vasomotor instability. The symptoms so commonly complained of, such as headache, lassitude, constipation and loss of weight, are the natural results of physical conditions. The increased lordosis that is usually present is regarded as a symptom due to the faulty muscular development and tone of the lumbar muscles. This exaggerated lordosis is well recognized in many muscular dystrophies and atrophies and in other conditions involving the lumbar and abdominal muscles.

The low pulse-pressure, in the opinion of the authors, is undoubtedly the cause of the albuminuria rather than a mechanical interference with the venous return from the kidneys. The interesting observation was made that the pulse-pressure can be lowered to almost the same degree by artificially producing lordosis while in the horizontal

position as when erect. The albuminuria in all these cases varied inversely as the pulse-pressure, regardless of the position.

4. **Fractional Estimation of Stomach Contents.**—Hydrochloric acid medication is discussed by Crohn. The results following the therapeutic administration of acid are correlated and conclusions drawn as to the best method for the administration of this commonly employed medicinal agent. A study of the effects of acid on the stomach during digestion was made. Particular reference was paid to the changes in acid titer of the chyme both directly after the taking of the acid and during the subsequent cycle of digestive activity. In order to study the effect of a single dose of acid, cases of achylia gastrica or cases of pernicious anemia, with complete anacidity, were chosen. These cases were all uniform in presenting in the control fractional estimation tests a complete absence of free acid throughout digestion.

Crohn found that hydrochloric acid administered therapeutically to the fasting stomach promptly disappears from that organ, the last trace leaving within twenty-five minutes. The administration of acid before a meal exerted no influence on the acid secretion of the subsequent digestive cycle. Twenty minims of dilute hydrochloric acid failed to improve the condition of anacidity when given with a test meal. Forty minims of dilute hydrochloric acid gave a definite though moderate increase of acidity; this increase was temporary in duration, being usually limited to the short period directly after taking the medication. Ten minims of dilute hydrochloric acid administered every half-hour was a mild though efficient method of increasing total acidity during digestion. It was, however, insufficient to produce free acid at any time in the cycle of digestion.

It is conceded by Crohn that the method of administering repeated small doses of acid at frequent intervals is hardly a practical one for every-day clinical use. Where it is possible, however, the method should be adopted. For temporary usage it is often highly satisfactory. The customary method of administering hydrochloric acid as a single dose is, in most instances, insufficient to relieve the abnormal condition. Small single doses (5 to 20 minims dilute HCl) fail completely. Larger doses (25 to 40 minims) give better results, though the effects are but temporary, lasting usually for the first half hour only after administration. Administering small doses at frequent intervals, that is, every half—or better every quarter—hour, is more efficient for accomplishing the desired effect. The custom of giving acid before a meal has no advantages. The best results are seen when it is taken during the early part of the digestive cycle. The effect of acid so administered is purely a local chemical one. A resultant physiologic stimulation of the mucosa was never demonstrable from Crohn's experiments.

5. **Autoserotherapy in Tuberculous Pleurisy.**—Twenty-three cases of tuberculous pleural effusion were treated by Lyter by Gilbert's method (withdrawing a few cubic centimeters of the fluid from the chest and immediately injecting it into the subcutaneous tissues of the patient). Eight cases of the series underwent complete absorption within two weeks of the beginning of the treatment. Lyter believes that the absorption in these eight cases was more probably due to the natural physical phenomena than to the stimulating effect of the treatment. His results indicate not only that the treatment does not cause absorption, accompanied by diuresis, diaphoresis, rise of temperature and leukocytosis, but that in some cases it is not entirely devoid of deleterious effects on the tuberculous process in the lung. Lyter advises that the assertion that 80 per cent. of all tuberculous effusions undergo spontaneous absorption should be qualified, as the spontaneous absorption may not occur for months, depending most probably on the organization of the fibrinous covering of the pleura.

6. **Relation of Housing to Pulmonary Tuberculosis.**—Reckford analyzes the statistics which he has gathered together from the 116 Pennsylvania State Tuberculosis Dispensaries and describes details of procedure followed by that department of state activities.

9. **Influence of Radium Water Therapy on Creatinin and Uric Acid Metabolism in Chronic Arthritis.**—The authors had an opportunity to study the influence of radium on the metabolism of three patients with chronic arthropathies. These patients, who were on a purin-free, creatin-free diet, received, five times a day, 3 ounces of water impregnated with radium emanations, 20,000 Mache units in all. Only one definite change in the metabolism was observed: A slight increase in the rate of creatinin excretion with a somewhat increased variation in the day-to-day values, an effect which persisted for a time after discontinuing the radium treatment. The radium therapy had no influence on the uric acid content of the blood or on the rate of excretion of uric acid, total nitrogen or water.

10. **Anatomy of Coronary Arteries.**—Smith's study of injection specimens of dog and human hearts showed that there is an anastomosis between the branches of the right and left coronary arteries, which is, for the most part, by means of many small vessels, but distinctly numerous and large enough to functionate.

12. **Complement-Fixation in Hodgkin's and Allied Affections.**—Kristjanson claims that the complement-fixation test in Hodgkin's disease, using *Bacillus hodgkini*, preferably an autogenous culture, in the preparation of antigens, may give a positive, possibly a specific, reaction if the serum be obtained from the individual at the proper phase or stage of the disease. Experimentally, animals inoculated with *Bacillus hodgkini* give a specific positive complement fixation. Normal individuals and those suffering from syphilis and tuberculosis have not given this reaction in the limited number tested by the author.

13. **Hyperthyroidism in Recruit.**—Brooks expresses surprise at the large number of these cases which he has seen among recruits. The most striking feature of these cases in nearly every instance is tachycardia, rarely accompanied by arrhythmia even in cases of very marked degree, and polygraphic studies, except in instances complicated by other vascular conditions, show, aside from rapidity, few signs of abnormal action, except that in the same case there is, under varying conditions, usually great variation in the rate of systoles. Practically always the rate is increased by exercise, though there are exceptional cases in which, as in ordinary palpitation, exercise may slow the rate, especially when the attention is thereby distracted; but speed of action is even more constantly accelerated by excitement and disturbing emotional factors. Closely associated with tachycardia is an obvious and subjective throbbing of the superficial vessels, notably of the carotids, of the brachials and even of the femorals, while that of the aorta, in moderately thin persons, is also quite evident.

Under excitement, instead of an increase in systolic stroke, there is a fall in the stroking power, and this is much more evident in the medium sized vessels, as the smaller ones seem to contract while the larger vessels expand in their arc of pulsation. There is a wide area of apical pulsation, and so violent is this at times that an actual sucking sensation is produced on the palpating palm at the diastole. The heart sounds, because of their rapidity, are usually very difficult to analyze, but in many cases a soft systolic murmur is detected at the apex, and is transmitted at times with decreasing intensity toward the axilla. The marked alteration in the quality and occurrence of this murmur in the same case at different times is occasionally a striking diagnostic feature. Everything in the nature of graphic methods seems to indicate that these murmurs are functional and not organic in origin. The tachycardia is not controlled by digitalis, even when given in massive doses. The sedatives at times, notably the bromids, give marked relief in some instances, but are apparently without effect in others. Postural and emotional rest appear to be the most efficient measures of control. Cold applications to the precordium have little or no effect. Very closely associated with these definitely circultatory symptoms are those of dizziness and fainting. Commonly these attacks are accompanied either by a marked paling of the face or by a marked hyperemia. Such attacks are directly precipitated by exercise or by emotional stress, such as, for example, occurs during a physical examination.

Next to the tachycardia the manifestations which seem most striking to Brooks are numerous evidences of emotional

instability, which is an invariable accompaniment of the disease. Irritability of temper, headaches and insomnia are almost constant, and during aggressive periods an intense feeling of fear, apprehension and terror, often quite beyond the control of the patient, is manifest. Outbursts of emotionalism are followed by a stage of great exhaustion, almost amounting to prostration, in which the patient may appear to be in extremis. The neurovascular instability is further shown by the *tache cérébrale*, by dermographia, by urticarial rashes and by the almost constant symptom of tremor, most marked in the hands; breathlessness at times, almost a dyspnea, is manifest, but without cyanosis or definite signs of asphyxia. The deep reflexes are excited, especially the knee jerks.

A considerable number of men give a history of ancestral goiter, particularly on the maternal side and sisters, less commonly brothers of the patients, commonly show similar goiter. There is also, in most instances, a familial history of nervous instability, of hysteria, insanity, perversions or of genius. Exophthalmos, which is so striking a feature of ordinary exophthalmic goiter, is present also in long-standing instances of this type. Not infrequently it develops very suddenly: it may be bilateral or monolateral or it may vary in either eye. During periods of excitement it is most evident, and as the tachycardia and emotionalism subside so also does the exophthalmos. In fact these men present, though in mild degree in some instances, all the cardial signs and symptoms of true exophthalmic goiter. Rest is the one factor which gives relief from symptoms.

American Journal of Syphilis, St. Louis

October, 1918, **2**, No. 4

16 *Syphilis of Nervous System. D. J. Kaliski and I. Strauss.—p. 609.
17 Syphilitic Meningitis in Infants and Young Children: Report of Case. P. A. Bly.—p. 712.
18 Histogenesis of Cerebral Hypertrophic Pachymeningitis and Its Relation to Syphilis. G. B. Hassin.—p. 715.
19 Syphilis of Larynx. J. J. Kyle.—p. 727.
20 *Differential Count in Syphilis. A. Blumberg.—p. 734.
21 Serum Diagnosis of Syphilis and Gonorrhea Employing Human Complement. J. A. Kolmer.—p. 739.
22 Increasing Potency of Low Titer Antisheep Amboceptor by Means of Chemical Fractionation. R. Gilbert, and A. I. Van Saun.—p. 755.
23 Debatable Phases of Wassermann Technic. E. A. Victors.—p. 758.
24 *More Intensive Form of Arsphenamin Therapy. H. H. Hazen.—p. 778.
25 Treatment of Neurosyphilis. J. B. Gooken.—p. 781.
26 Id. R. W. Harvey.—p. 785.

16. Syphilis of Nervous System.—A plea is made by Kaliski and Strauss for more intensive intravenous treatment of syphilitic diseases of the central nervous system. They claim to have proved that arsphenamin and immune bodies pass the barrier of the choroid plexus and appear in the spinal fluid after intravenous therapy. It is shown that after therapeutic doses of arsphenamin intravenously arsenic is found in the spinal fluid in greater concentration than can be effected by the introduction of arsphenamized serum or arsphenamin into the fluid. The intensive and prolonged use of arsphenamin intravenously combined with the exhibition of mercury and iodids has give the authors the best results in the treatment of syphilis of the nervous system. Intraspinal medication is of occasional and secondary value only. It may be tried in selected cases after intravenous and combined therapy have proved ineffectual in the event that the biologic reactions in the spinal fluid are positive. Reeducational measures are of great value in the treatment of ataxic patients. Forty-one cases are cited in detail.

20. Differential Count in Syphilis.—Blumberg claims that a high percentage of either small or large lymphocytes—or both—is present in almost every case of syphilis and that increase in lymphocytes may confirm the diagnosis of syphilis even when the blood Wassermann test presents a negative reaction, provided, that other conditions, usually accompanied by lymphocytosis, are absent.

24. Intensive Form of Arsphenamin Therapy.—In selected cases Hazen has been giving injections of arsphenamin at seventy-two hour intervals. He has given ninety-eight injections to twenty-two different patients, never giving less than three and several times as high as eight doses. There was not a single untoward result; while a number gave the usual reactions of nausea, vomiting, diarrhea and headache, there were no evidences of any increased intolerance toward the drug. In no instance was albumin demonstrated in the urine. None of the patients showed any jaundice and none lost any weight. The dose employed was 0.4 grams per 150 pounds of body weight. For such a dose 70 c.c. of distilled and double boiled water was used, and the sodium hydroxid solution was pure and fresh. All injections were given in the office and the patients allowed to go home immediately afterward. The clinical results were very good: lesions cleared up very shortly. Nineteen of the patients showed positive Wassermanns: in one instance a course of three injections failed to change this finding, but in all other instances, bar one, the Wassermann became negative with great promptness.

Archives of Pediatrics, New York

October, 1918, **35**, No. 10

27 Clinical Study of Fifty-Five Cases of Hypothyroidism in Children. M. B. Gordon.—p. 577.
28 Establishment and Maintenance of Breast-Feeding. J. P. C. Griffith.—p. 597.
29 Some Causes of Still Birth. J. C. Edgar.—p. 603.
30 Unusual Type of Vesical Calculus. B. Bashinski.—p. 615.

Boston Medical and Surgical Journal

Nov. 28, 1918, **179**, No. 22

31 Attempt to Prevent Influenza at Harvard College. G. R. Minot.—p. 665.
32 Tooth Impacted in a Secondary Bronchus of Left Lung: Removal by Lower Bronchoscopy. S. Thomson.—p. 669.

Endocrinology, Los Angeles

July-Sept., 1918, **2**, No. 3

33 *New Pluriglandular Compensatory Syndrome (Thymus-Adrenal-Pituitary). W. Timme.—p. 209.
34 *Is There a Thymic Hormone? E. R. Hoskins.—p. 241.
35 Active Cooperation Between Physiologist and Clinician in Study of Internal Secretions. C. E. de M. Sajous.—p. 258.
36 Iodin as Active Principle of Thyroid. W. W. Swingle.—p. 283.
37 *Effect of Roentgen Ray on Response of Tadpoles to Thyroid Stimulation. C. P. McCord and C. J. Marinus.—p. 289.
38 Use of Suprarenal Products in Addison's Disease. J. Daland.—p. 301.

33. Thymus-Suprarenal-Pituitary Compensatory Syndrome.—Seven cases are cited by Timme in which the chief complaint was great muscular fatigability, usually combined with headache referred to the frontal region and midway between the temples. Included in the history was frequently a statement of recent or concurrent rapid growth in height as well as of the extremities. The syndrome begins in youth, some years before puberty, and goes through its varying stages in about two decades. In its incipiency it presents largely the characteristics of the so-called status thymicolymphaticus, or status hypoplasticus of Bartels. The clinical history of these cases consists of a syndrome of thymus-suprarenal-pituitary combination, one Timme says frequently met with and its various stages are easy of recognition. The main characteristics of fatigability, low pressure, headache and growth are invariable components of the syndrome and depend on maladjustments of endocrine interactivity. Stabilization of the balance may be produced spontaneously providing the sella turcica may be made to accommodate a hyperactive hyperplastic pituitary gland. This is done presumably by erosion of the bony capsule of the gland. In cases of inability of such enlargement of the sella, the syndrome persists, but the symptoms may be alleviated by the feeding of pituitary extract continuously. In the course of the syndrome other glands may be brought into the complex and alter the picture somewhat, but these are vagaries and seemingly have no great determining effect on the course of events. Once recognized in any of the early stages, the further general progress of these cases can be prognosticated with a great degree of accuracy; and intervention, if necessary, can be undertaken with a large degree of success in the amelioration of the distressing symptoms.

34. Is There a Thymic Hormone?—Hoskins says that whatever be the real function of the thymus, certain it is that its

production of an internal secretion has not been proved. The evidence in favor of such a theory is but circumstantial at best and very meager. It is equally difficult to prove that the thymus does not produce a secretion.

37. **Effect of Roentgen Ray on Response to Thyroid Stimulation.**—Selected tadpoles were subjected to the action of roentgen rays in small amounts. Certain individuals were then treated with preparations of thyroid gland and the rate of their metamorphosis compared with the metamorphosis rate of (1) normal tadpoles, of (2) thyroid-fed tadpoles which had not been irradiated, and of (3) irradiated but not thyroid-fed tadpoles. The results of these experiments indicate that irradiation is without apparent effect on normal tadpoles, but determines a slight but distinct increase in the susceptibility of young tadpoles to thyroid stimulation.

Journal of Cancer Research, Baltimore

July, 1918, 3, No. 3

39 *Experimental "Carcinomas" of Animals and Their Relation to True Malignant Tumors. F. D. Bullock and G. L. Rohdenburg.—p. 227.
40 Adenocarcinoma or Adenoma of Liver in a Mouse. S. Itami.—p. 275.
41 Hereditary Tumor in Fruit Fly, Drosophila. M. B. Stark.—p. 279.
42 *Biologic Treatment of Cancer. G. Fichera.—p. 303.

39. **Experimental "Carcinomas" of Animals.**—Bullock and Rohdenburg record the results of experiments on chronic irritation, undertaken with the view of reproducing, through means other than those employed by others, such lesions as they have described, in order to ascertain whether these might not be interpreted as hyperregenerative processes rather than as true carcinomas. The authors urge that extreme caution should be observed before reports of the production of cancer by artificial means are accepted. In irritation tumors, atypical proliferation and invasive growth, even when extensive, are held to be doubtful criteria on which to base a judgment of malignancy; and in the absence of continued growth after the action of the extrinsic irritant has ceased, experimental tumors should not be classed as malignant however close be the morphologic resemblance. It is a fact that the lesions reported by the various observers quoted are produced as readily in young as in old animals, and apparently do not possess the power of continuous growth on transplantation into animals of the same species, thus increasing the doubt regarding their malignant properties. All these facts Bullock and Rohdenburg believe point to the conclusion deduced from clinical observation, that age, organ specificity, and congenital defects play an important and, in many cases, a decisive rôle in the determination of the origin of cancer, and that irritation alone is an insufficient factor.

42. **Biologic Treatment of Cancer.**—Fichera reviews critically the work done during the past twenty years in the biologic treatment of cancer. He says that certain fundamental principles of treatment may be derived from such a review. Importance must be attributed to suitable dosage, to the proportion between the mass to be destroyed and the curative agent, and to the alternation of oncolytic stimulation with various histogenic products. Finally histogenic treatment adds to its indirect action on antiblastic organs an important direct action by reason of the oncolytic substances introduced. In developing the biologic treatment of tumors, Fichera is convinced that chemotherapy should be practiced by means of autolysates.

Medical Record, New York

Nov. 30, 1918, 94, No. 22

43 Case of Perforation of Duodenum Treated Successfully by Duodenal (Jejunal) Alimentation. M. Einhorn.—p. 927.
44 Case of Labyrinthal Meningitis. A. Kahn.—p. 930.
45 Syphilis in 1918. B. S. Dunn.—p. 933.
46 Meaning of the Term "Crippled." D. A. McMurtrie.—p. 939.
47 Case of Abducens Paralysis Complicating Mastoiditis. P. D. Kerrison.—p. 941.
48 Gas Poisoning. E. G. Rankin.—p. 942.

Military Surgeon, Washington

November, 1918, 43, No. 5

49 *Epidemiology of Virulent Oriental Smallpox. C. E. Riggs.—p. 425.
50 Physical and Mental Training of Convalescents at Base Hospital, Camp Zachary Taylor. S. J. Myers.—p. 497.
51 Prompt Management of Fractures of Nose. L. Cohen.—p. 506.
52 Syphilis in Relation to Central Nervous System. L. H. Cornwall.—p. 510.
53 *Midclavicular and Midsternal Lines as Landmarks in Recording Cardiac Outline. E. H. Goodman and H. C. Harris.—p. 528.
54 *Empyema. Fluoroscopic Study of Sixty-Four Cases. C. H. Nims.—p. 538.
55 Suggested Improvements in Methods of Petrolization of Mosquito Breeding Areas. W. L. Mann and E. C. Ebert.—p. 543.
56 *D. Meningitidis in Adenoid Tissue of Nasopharynx. J. D. Aronson and S. A. Friedberg.—p. 546.

49. **Epidemiology of Virulent Oriental Smallpox.**—Riggs presents the results of his study of eight cases of smallpox occurring among a thoroughly vaccinated group of men. During the winter of 1917-1918, China suffered severely from epidemics of smallpox, diphtheria, scarlet fever and plague, and each of these diseases manifested an unusual degree of virulence. The eight men attacked were believed to be as fully protected against smallpox as is possible by means of vaccination. The interest in the situation, then, was in the result which might be expected to follow when a most virulent type of smallpox encounters a thoroughly vaccinated group of men.

In this instance, when more than 1,000 men were fully exposed to the most virulent epidemic that had visited the Chinese coast in many years, there resulted eight cases of smallpox representing five varieties of the disease. The ordinary variety of smallpox, that is, the discrete type of the disease, was not to be found in this series of eight cases. The virulent infection overcame whatever immunity had been established in the individuals by vaccination and resulted in one or another of five uncommon varieties of the disease. The discrete variety, the type that is ordinarily met with, was conspicuously absent.

The five varieties occurring in this epidemic were modified, abortive, confluent pustular hemorrhagic, and purpuric smallpox. Four of the eight cases were very mild and soon terminated in recovery without complications. With the remaining four, the the infection took on a violent form and ran a rapidly fatal course. Riggs urges that in the presence of a virulent epidemic of smallpox, at least three vaccinations in series of one week interval should be restored to, as this method seems to obtain a large number of "retardation" takes which in all probability have considerable immunizing power.

53. **Midclavicular and Midsternal Lines for Recording Heart Outlines.**—The authors' studies had for their object the question of the distance of the midclavicular line from the midsternal line, the relation of the left border of the heart to the midclavicular line, and the relation of the midclavicular line and the left border of the heart to the individual's height, weight and chest measurement. A group of normal men (307) was studied, irrespective of their nativity, physique and color, the only demand being that they must be free of any appreciable physical defect. These men were weighed, their height and chest were measured and, in addition, the distance from the midsternal to the midclavicular line was determined, the heart was percussed and the position of the left border expressed in centimeters distant from the median line. All methods were essentially clinical; no corroboration of the percussion was made orthodiagraphically. It was found that the position of the midclavicular line on the chest wall varies disproportionately with the height. Nor is the left border of the heart a fixed quantity, nor does it vary proportionately with the height. Thus a man of 5 feet 5 inches may have a heart 0.7 cm. larger than the man of 6 feet 2 inches. The largest hearts were seen in the man of 65 to 66 inches, and in these individuals the left border was over 1 cm. outside the left midclavicular line. As a matter of fact, in only two instances was the left border within the midclavicular line, namely, in the men of 69 and 74 inches.

Obviously this line is not a safe landmark, and equally obvious is the observation that no standard of comparison between the height and cardiac outline can be made. The only possible deduction is that irrespective of height and the midclavicular line, the distance of the left border from the median line is the only fair criterion, and, from the authors' figures, this distance is 9 to 10.5 cm. The midclavicular line is variable and also the size of the heart, but the left border

in all but three instances (in the men of 150 to 159, 160 to 169, 200 to 209 pounds) was beyond the left midclavicular line, sometimes as far out as 1 cm.

54. **Empyema.**—Nims claims that much light is cast on the proper interpretation of the fluoroscopic image if the type of infection is known. Cases due to infection with *Streptococcus hemolyticus* are much more difficult of interpretation than are those with the standard types of pneumococcus, and more fatal. The diagnostic value of rolling the patient slightly from side to side for fluoroscopic study is strongly emphasized, for by this means only can the location of pus be determined in its anteroposterior relations.

56. **Meningitis Carrier.**—The authors cite the case of a soldier who was a carrier of meningitis. The organism was harbored in the nasopharynx exclusively. The persistence of the carrier condition was due to the localization of the organism in the adenoid tissue.

Neurological Bulletin, New York

September, 1918, **1**, No. 9

57 *Temperature Reaction in Nervous Diseases. E. L. Cornell.—p. 335.

57. **Temperature Reaction in Nervous Diseases.**—The reaction to simultaneous cold and hot stimulation in twenty-two cases of syringomyelia, tabes dorsalis, multiple sclerosis, peripheral neuritis, and a case presenting a capsulothalamic syndrome was investigated by Cornell. It was found that patients suffering from syringomyelia, tabes dorsalis, multiple sclerosis, and the type of thalamic lesion presented in this study, generally show some disturbance in reactions to double thermal stimuli, whether or not evinced by ordinary clinical tests. There is a larger proportion than normal of single responses to double stimuli. There is more than a normal tendency, in many cases, to call temperatures of 41 degrees to 44 degrees C. or higher, warm instead of the usual hot. Reactions to double stimuli are in general more disturbed than reactions to single; and H-C responses more than C-H. C-H responses indicate the nearest approach to the normal reaction; they are the most frequent type in the least disturbed cases (with one exception); and they are nearest to normal in time for each individual. The differences between the different syndromes are sufficiently distinct to be suggestive, although there is some overlapping. Multiple sclerosis has a particularly clear-cut characteristic—a dissociation of the perception of doubleness. The double stimulation acts in such a way as to delay the perception of hot more often than that of cold.

New York Medical Journal

Nov. 30, 1918, **108**, No. 22

58 New Method of Making Gonorrheal Complement Fixation Test. R. B. H. Gradwohl.—p. 929.
59 Detection and Measurement of Latent Ocular Deviations. F. W. Marlow.—p. 936.
60 Clinical Observations in Splanchnoptosis. G. L. Lambright.—p. 939.
61 Nonsurgical Treatment of Exophthalmic Goiter. I. Bram.—p. 942.
62 Congenital Fistula of Lacrymal Sac. Three Cases. W. B. Weidler.—p. 944.
63 Mechanics of Defecation. C. D. Spivak.—p. 945.
64 Cerebrospinal Meningitis. Case Treated by Ten Serum Injections. R. W. Angevine.—p. 946.

Pennsylvania Medical Journal, Athens

November, 1918, **22**, No. 2

65 War and the Child. S. McC. Hamill.—p. 45.
66 *Reeducation of Injured Soldier. T. McKenzie.—p. 50.
67 Cardiovascular Problem in Aviation Recruit. J. I. Johnston.—p. 53.
68 Roentgen-Ray Examination of Heart and Great Vessels. G. W. Grier.—p. 56.
69 Health Insurance. J. B. McAlister.—p. 58.
70 Id. W. F. Donaldson.—p. 62.
71 Id. F. L. Van Sickle.—p. 63.
72 County Society Dues and Per Capita Assessment for 1919. W. H. Mayer.—p. 64.
73 Id. J. L. Lenker.—p. 65.
74 Id. J. B. F. Wyant.—p. 67.
75 What Can County Society Do for Its Members in Service? W. T. Sharpless.—p. 68.
76 Id. J. M. Quigley.—p. 70.
77 County Secretary. F. M. Crandall.—p. 71.

66. **Reeducation of Injured Soldier.**—McKenzie says that the majority of the men who fill our war hospitals and convalescent homes must depend for most of their present treatment, and for their future efficiency, on the masseuse, the practitioner of electro and hydrotherapy, the physical instructor, and the teacher of vocational training. The course usually followed begins with preparation by heat, either wet or dry, or produced by electricity, on through the stimulation of nutrition by massage and passive movement, then to simple exercise taken voluntarily and eventually to skilled movements by gymnastics, games and handicrafts, and graduating into industrial training. The various steps of the treatment are described in detail.

Southwestern Medicine, El Paso

October, 1918, **2**, No. 10

78 Operative Indications in Acute Mastoiditis. J. J. McLoone.—p. 1.
79 Pellagra. Report of Cases. P. Rigney.—p. 4.
80 Tuberculous Meningitis. W. R. Smith.—p. 9.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy

October, 1918, **23**, No. 5

1 Portable Roentgen-Ray Generating Outfit. W. D. Coolidge and C. N. Moore.—p. 137.
2 Electro-Physics of Ionic Medication. H. H. U. Cross.—p. 149.
3 Spur-Like Formations of Bone Following Amputation. J. D. Morgan, B. A. Cantab and C. M. McGill.—p. 154.
4 Method of Preventing Dust From Getting Between Fluorescent Screen and Lead Glass. D. Stone.—p. 161.

British Journal of Surgery, London

October, 1918, **6**, No. 22

5 Bone Growth and Bone Repair. A. Keith.—p. 160.
6 Weight Extension in Treatment of War Fractures. W. H. Ogilvie.—p. 166.
7 *Diagnosis and Treatment of Injuries to the Crucial Ligaments. Report of Cases. S. A. Smith.—p. 176.
8 *Affections of Large Joints Due to Gunshot Wounds: Their Late Results and Treatment. S. W. Daw.—p. 190.
9 *Ununited Fractures, with Special Reference to Gunshot Injuries and Use of Bone Grafting. E. W. H. Groves.—p. 203.
10 *Treatment of Disabilities of Upper Extremity in Military Surgery. N. Dunn.—p. 248.
11 *Results of Primary Excision for Wounds of Elbow-Joint. A. E. Moore.—p. 265.
12 Structure, Forms, and Conditions of Ends of Divided Nerves: Regeneration Neuromata. E. M. Corner.—p. 273.
13 *Injuries of Peripheral Nerves from Surgical Standpoint. H. S. Souttar and E. W. Twining.—p. 279.
14 *Suture of the Musculospiral Nerve: Three Cases. G. Williams.—p. 315.
15 Operative Procedure in Nerve Injuries. R. Kennedy.—p. 317.
16 Case of Gunshot Injury of Meckel's Diverticulum. G. Taylor.—p. 324.
17 Case of Congenital Defect of Thorax, with Sprengel's Deformity. H. Burrows.—p. 325.
18 Case of Torsion of Appendix. J. E. Payne.—p. 327.

7. **Treatment of Injuries to Crucial Ligaments.**—Generally speaking, Smith says, the immediate treatment of injuries to crucial ligaments should be conservative rather than operative. Recent injuries to the joint that show abnormal mobility should be roentgenographed as a routine. This will eliminate avulsion of the tibial spine. Where there is rupture of both crucials, due to lateral or posterior dislocation of the knee, the limb should be immobilized with the knee flexed to 20 degrees for at least three months, but faradism to the quadriceps and general massage with movements of the patella should be practiced daily. Good results have been reported from treatment by prolonged fixation of the joint. When the lesion is accompanied by a paralysis of one or both of the popliteal nerves due to stretching, postural and electrical treatment for the nerve injury must also be undertaken. Where there is a recent avulsion of the tibial spine, Smith advises to try the effect of immobilization of the knee in the fully extended position for twelve weeks, combined with massage and faradism, rather than to treat the case by primary operation and fixation of the detached ligament and its bony insertion. In cases of old standing, however, operative mea-

sures are indicated. The after-treatment of anterior crucial injuries can generally be undertaken by means of appliances worn for an indefinite period.

In the operative treatment of anterior crucial injuries, the following operations have been done at varying times, apart from those of immediate suture of the ligaments: (1) plication; (2) reefing; (3) wire loops; (4) silk ligament substitution; (5) fascial substitution. Smith's experience with these operations leads him to endorse only fascial substitution.

8. **Gunshot Wounds of Large Joints.**—Daw discusses this subject in all its aspects. He is convinced that improvement of mobility is more likely to be gained by slight movements followed by periods of rest, or by slow stretching of contracted parts—in other words, by gradual change of position—rather than by forcible movements through a large range. Open operations to obtain mobility, he thinks, are rarely advantageous, except in the case of the elbow joint, where they are usually satisfactory. He does not favor passive movements which he says have very limited value, and are often harmful. Active movements, however, especially those of normal use and occupation, Daw regards as being most valuable, often doing more to increase mobility than surgical measures.

9. **Treatment of Ununited Fractures.**—This paper deals with a series of sixty consecutive cases treated by Groves during the last two years, and refers almost entirely to gunshot injuries. Loss of substance was the most important factor in the production of nonunion. This cause accounted for thirty-four cases (56.6 per cent.). Necrosis, which is a common cause of delayed union, but a very rare cause of nonunion, was operative in three cases. In twenty-one cases nonunion was due to displacement of the main fragments. In two cases eburnation was the cause of nonunion. The series contains thirty-four cases of autogenous bone grafting. Of these, ten (29.4 per cent.) have been failures, five (14.7 per cent.) have been eventual successes in producing bone union after extrusion of the graft, and nineteen (55.8 per cent.) have been complete successes. In every one of the fifteen cases where success was not complete, the cause of failure was traced. The reasons for failure were: operation performed too early; scanty contact between the graft and its bed; a sliding graft; patient fell on his arm and broke the graft, bursting open the wound; the graft was laid in unhealthy bone which should have been removed; too complicated a procedure was adopted, and the patient died of shock; the humerus was not immobilized adequately, and the arm, hanging on the graft, broke the fixation; scars in front of the tibia were not sufficiently replaced by healthy tissue before grafting; periosteal flaps with thin bone scales adhering to them were turned down over the gap and produced only a thread of bone.

10. **Treatment of Disabilities of Upper Extremity.**—Dunn recommends nerve suture as the prime consideration in the treatment of disability of the joints of the upper extremity, and emphasizes the importance of tendon transplantation as the final operation to be undertaken in the treatment of disabilities of these joints. For it to be successful, the muscles must be strong and healthy and these will only be available if the joints they control have allowed of their free development.

11. **Primary Excision for Elbow-Joint Wounds.**—Eleven consecutive cases were recently treated at the Bristol orthopedic center after having had primary excision of the elbow joint performed at the front. Ten have flail elbows to a greater or lesser degree, and the uselessness of the limb is—if the length of time from the original wound be taken into account—in almost direct proportion to the amount of bone removed. As the amount of bone removed decreases so does the functional result improve. Moore says that extensive primary excision must result in a flail joint. Limited excision, however, is satisfactory. If the bone is comminuted, a muscle-fascia flap should be carried in to cover comminuted bone as is done in arthroplasty. The postoperative support of the forearm is essential, and rest is more important than early movement. Capsulorrhaphy in certain chosen cases of flail elbow has been effective.

13. **Injuries of Peripheral Nerves.**—The lesson which Souttar and Twining have learned best from their observation of 122 cases is that success in nerve surgery is a matter of organization. The investigation of the cases is so complex, the operations involve such unusual details of experience and technic and the after-treatment required is so tedious and varied, that only by means of an extensive organization can they all be satisfactorily carried out. The highest operative skill is of no use in the face of incompetent physicotherapy, while the most perfect physical treatment is powerless to remedy the mistakes of a clumsy surgeon. The authors plead for the concentration of all nerve cases in centers where they will have at their disposal the extensive material resources, the clinical experience, and the trained patience without which their recovery is a matter of chance; and they plead for routine and for simplicity in such a center.

A careful examination should be made in every case and recorded as soon as the patient is so far recovered as to enable it to be carried out. This examination is repeated once a month, and meanwhile he is every day under the close observation of the department until he leaves the hospital. After that an attempt is made to keep in contact with the man himself or his medical adviser. In operating, the surgeon should follow a simple and precise routine. He should have as clear and accurate a knowledge as is possible of the anatomy of the region, and the condition of the nerve which he may expect to find. He should have a clear idea of what he means to do, and he should do it in the simplest manner possible. The physical treatment of the case, before and after operation, should be based on a definite routine, although it should be directed to the special requirements of the patient, and should introduce all variety that is possible.

In the preoperative care of the patient the authors regard the whirlpool bath as the most powerful curative physical method at present at our disposal. It facilitates other methods, softening the limb for massage, and increasing its conductivity for electricity; it reduces pain; and it produces a feeling of wellbeing in the limb which stimulates the patient to those voluntary exertions without which no complete recovery can be obtained. A very important feature of the treatment is the great economy in massage effected. The duration of massage has been reduced from thirty to ten minutes, the actual process is easier and less laborious, while the results are in every way superior to those which could be obtained previously.

14. **Suture of Musculospiral Nerve.**—The three cases reported by Williams show the completeness with which motor recovery takes place after suture of the musculospiral nerve, and they emphasize the progressive downgrowth of the axis cylinder. The technic of the operation has in every case been quite simple, the nerve ends being brought together without any tension by a single catgut suture through the substance of the nerve. The line of suture was wrapped round the subcutaneous fat. Precautions were taken to prevent any tension on the union until a month had elapsed. In all cases the muscles paralyzed were relaxed by an extension splint.

Journal of State Medicine, London

May, 1918, **26**, No. 5

19 Medical Services of the Italian Army. F. De Filippi.—p. 129.
20 Milk and Health. J. Crichton-Browne.—p. 140. (To be continued.)

June, 1918, **26**, No. 6

21 Public Health and Alcoholism Among Women. D'Abernon.—p. 161.
22 Health Problems and State Ministry of Health. W. Astor.—p. 170.
23 Milk and Health. J. Crichton-Browne.—p. 178.

July, 1918, **26**, No. 7

24 Women's Health and Work in War Time. O. Gordon.—p. 193.
25 Women Workers and Health of the Nation. A. M. Anderson.—p. 205.
26 *Membranous Colitis Treated with Enterococcus Vaccines. A. H. Drew.—p. 217.

November, 1918, **26**, No. 11

27 Problem of Birth Control with Special Reference to Public Health Aspect. C. K. Millard.—p. 321.
28 Influence of a Ministry of Health on Local Organization and Administration. E. W. Hope.—p. 338.

26. Membranous Colitis Treated with Enterococcus Vaccines.—Fifteen cases of mucous or membranous colitis have been treated by Drew with great success by means of autogenous vaccines. The patients all exhibited most of the classical symptoms of this disease. All the patients with the exception of one, passed casts which examination showed to consist of a mucoid material, containing many goblet cells, leukocytes, and, in some cases, acicular crystals. The membrane in all cases swarmed with bacteria, of which the gram-positive forms predominated. In fourteen of the cases the enterococcus was observed together with *Streptococcus faecalis*. In no case could any evidence of agglutination be obtained with either organism, but in all cases a low opsonic index was obtained with the enterococcus. Complement fixation was obtained with four out of the six cases tested, using the enterococcus as an antigen. Drew found that many patients are extremely susceptible to the enterococcus, hence initial doses of vaccine of not more than 2 to 3 million cocci should be given. The treatment should be continued with gradually increasing doses till 500 million cocci can be injected without producing reaction.

Lancet, London

Nov. 9, 1918, **2**, No. 4967

29 *Neuroses and Psychoses of War. W. A. Turner.—p. 613.
30 Factory and Workshop Conditions and Prevalence of Pulmonary Phthisis. B. Moore.—p. 618.
31 *What Are the Disabilities and Compensations Entailed by Reproductive Function of the Female? W. A. Lane.—p. 622.
32 Pharmacology of Alcohol. R. B. Wild.—p. 623.
33 Agglutinating Properties of Certain Sera Against B. Typhosus, B. Paratyphosus A and B. T. T. O'Farrell.—p. 626.

29. Neuroses and Psychoses of War.—There appears to be general agreement on the value of the segregation of soldiers suffering from the neuroses of war, and Turner says three to four years' experience has justified the principle. It is essential that these patients, when segregated, should be under specially trained medical officers and that "an atmosphere of cure" should pervade the special hospital. The great value of segregation is that all patients may be studied individually and all agents determining causation, exaggeration of prolongation of symptoms may be sought out and eliminated. There is no evidence that in properly conducted hospitals these patients imitate each others' tremors or abnormal gaits, while it is well known that in general hospitals the eccentricities of conduct and behavior of the hysterical patients make them objects of curiosity and often of humor to the other patients. It has long been recognized that the sooner the patients are brought under skilled treatment the more rapid and satisfactory is the cure. By these means the symptoms which in the early stages are removable and "fluid" are prevented from becoming fixed and a "habit" established.

The French Military Medical Service recognized this early in the war and established neurologic centers in the zones of their armies. In consequence of the success attending the treatment of the war neuroses in these centers similar centers were established in the areas of the British armies in the winter of 1916-1917. A large number of cases of war neuroses in the early stages of their disability derive great benefit from a modified rest cure. In the later or "habit" stages a judicious combination of suitably directed psychotherapy and selected occupation, according to the mental and physical fitness of the soldier, gives the most satisfactory results. Occupation further supplies the best means of grading the soldier when the time arrives for his discharge from hospital to duty.

31. Disabilities and Compensations Entailed by Reproductive Function of the Female.—Lane speaks particularly of the thyroid. It is most closely associated with the sexual function in the female. The variations in the size of the thyroid afford clear confirmation of the preponderating influence of sex in the woman as compared to the part it plays in man. The thyroid enlarges periodically during the whole period of the woman's sexual life. This is more marked during a few days preceding menstruation, and continues while the period of sexual desire is at its height. After this the thyroid diminishes in size. This condition exists all through the sexual life of the woman. The enlargement of the thyroid is accentuated by intercourse and still more by pregnancy. The thyroid and the ovary would appear to go through associated stages of activity and rest.

Lane calls attention to the fact that one of the most marked features in advanced cases of chronic intestinal stasis in the woman is the total absence of sexual desire, it being replaced in many instances by a feeling of disgust for intercourse. Associated with this there is in this disease great wasting of the thyroid. This wasting is most conspicuous in the isthmus, which cannot be detected by the finger though the rings of the trachea can be accurately and clearly defined. The thyroid varies in size in the circumstances described in women whose hair is towy or red, as compared with the variations in women with dark hair. It alters with the intensity of the sexual appetite, which is a more marked feature in women of this colored hair than it is in the brunette. It is obviously the case that this type of woman resists the poisonous influences of chronic intestinal stasis with much more vigor and that she retains her sexual appetite up to a later stage in that disease than does her dark-haired sister.

Lane has noted that one of the most remarkable effects of freeing ileac effluent in chronic intestinal stasis by the removal of the colon is the rapid return of sexual desire, which may have been lost for some considerable time. Not only does it return to normal conditions, but in many cases it becomes manifestly exaggerated. In the female the toxins or organisms which are derived from the intestine in chronic intestinal stasis produce by their influence on the overstrained thyroid, directly through its blood supply or indirectly through its nerve supply, a far greater change than in man, and this occurs during the period of greatest sexual activity. Pregnancy affords the static woman with the prolapsed, angulated, and dilated gastro-intestinal tract, who exists in enormous numbers in the community, an opportunity of rehabilitating herself by reestablishing temporarily the normal flow of the intestinal contents, and so permitting her to store up in her body such a quantity of fat and muscle as will serve to retain her viscera in their correct positions and functions. How often, asks Lane, does one see a poor, thin, static virgin converted into a plump, healthy, happy mother by a pregnancy? How often is the surgeon called on to perform operations of a more or less mutilating character on the breasts and intestinal tract of women who, if they were able to perform the normal functions which they were born to carry out, would be restored to a state of health and happiness instead of leading lives of necessarily increasing invalidism and being a nuisance to themselves and to those with whom they are brought in contact?

Medical Journal of Australia, Sydney

Oct. 5, 1918, **2**, No. 14

34 Symptomatology of Disorders of Stomach from Physiological Aspect. A. E. Mills.—p. 279. (To be continued.)
35 Principles Underlying Surgery of Gastric Ulcer. G. Craig.—p. 282.

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36 The Mentally Deficient. P. A. R. Lalor.—p. 299. (To be continued.)
37 Symptomatology of Disorders of Stomach from Physiological Aspect. A. E. Mills.—p. 301.

Oct. 19, 1918, **2**, No. 16

38 From Soldier to Civilian. F. J. Chapple.—p. 321.
39 The Mentally Deficient. P. A. R. Lalor.—p. 323.

Oct. 26, 1918, **2**, No. 17

40 Prophylaxis and Treatment of Gastro-Enteritis. T. H. R. Mathewson.—p. 343.

National Medical Journal of China

September, 1918, **4**, No. 3

41 Uncinariasis in Pinghsiang Colliery, Hunan. F. C. Yen.—p. 81.
42 Pneumonic Plague. Ministry of Home Affairs Report.—p. 88.
43 Smallpox in China. K. C. Wong.—p. 94.
44 Chinese Ginseng, Its Distribution and Manufacture. F. J. Brumfield.—p. 97.
45 Manufacture of Serum. M. F. Wilson.—p. 104.

Tropical Medicine and Hygiene, London

No. 1, 1918, **21**, No. 21

46 Heart Block in a Sudanese. A. J. Chalmers and E. Gibbon.—p. 213.

Archives Médicales Belges, Paris

October, 1918, 71, No. 10

47 *Surgical Shock; Nature and Treatment. E. H. Starling.—p. 369.
48 *Latent Period in Shock. D. Baruch.—p. 377.
49 *Meningeal Reactions in Syphilis. B. Dujardin.—p. 390.
50 Treatment of Syphilis in a Training Camp. M. Cheval and M. Moreau.—p. 411.
51 *Treatment of Gonorrhea in Men on Active Service. F. Van den Branden.—p. 419.
52 *Deep Antisepsis. J. Voncken.—p. 437.
53 Epinephrin Test of Hyperthyroidism. J. De Laet.—p. 481.

47. **Surgical Shock.**—Starling is professor of physiology at London, and he concludes this report of his research on shock by emphasizing that shock is a state of hyperstimulation rather than of paralysis. Stimulants therefore are directly contraindicated, while morphin becomes the main reliance. There is general constriction of the blood vessels, and this is increased by the action of cold. The low pressure is due to the small amount of blood in actual circulation. The lacking blood must be replaced, and the acidosis from reduction of the alkaline reserve in blood and tissues must be combated with an alkaline fluid. Experience has shown the advantages for this of a 5 per cent. solution of gum acacia containing 2 per cent. of sodium bicarbonate. An injection of 500 c.c. of this solution should be given whenever an operation is to be done on a wounded man in shock.

48. **Latent Period in Shock.**—Baruch explains shock as the initial nervous shock, the effect of the traumatism. This sets in play a number of inhibitory actions, and these in turn entail profound modifications in important functions of the organism. Usually several hours elapse before they become manifest, and this latent period seems to be the preparation, the passage of the organic functions towards a deficiency, an upsetting of the balance, which permits complications of all kinds, and especially infection to get a foothold in the organism.

49. **Meningeal Reactions in Syphilis.**—Dujardin discusses the import for diagnosis and prognosis of the tension of the cerebrospinal fluid, its lymphocytosis, globulin and albumin content, and the Wassermann reaction in the fluid and in the blood. He assumes that the antibodies inducing the Wassermann reaction are derived from the blood, and that they pass into the fluid only when the meninges are pathologic. The normal meninges are not permeable for them, and hence the relative quantity of these antibodies in the fluid is an index of the degree of the involvement of the meninges. He determines this permeability index by ascertaining the minimal amounts of the fluid and of the serum which give the Wassermann reaction. If the serum gives it at a dilution of 1:10 and the fluid at 1:2, the former is thus five times stronger, and the permeability index is 1/5. The different forms of syphilitic nervous affections have special types of this index, and it is modified specifically by the effect of treatment. His extensive experience has demonstrated that with a zero index, every case of syphilis of the nervous system (not having presented paralysis or epilepsy), can be regarded as fit for military service provided the treatment can be kept up systematically, even if the Wassermann reaction in the blood is still positive. Men can be regarded as fit only for limited duty when the meningeal lesions persist (over 1.5 albumin) and the index persists after two courses of arsenical treatment. Also those who have had transient paralysis or epilepsy. Also those with incipient tabes, the reflexes abnormal, and the index persisting. Men should be discharged from the service who present syphilis of the nervous system with a permeability index persisting high (from 1/1 to 1/5) after two courses of arsenical treatment, and with more than ten units of antibodies in the blood and high albumin content in the spinal fluid.

51. **Treatment of Gonorrhea in Troops on Active Service.**—Van den Branden has no faith in the men treating themselves, but says that he has cured 65 per cent. of 410 acute cases and 53 per cent. of 232 chronic cases; 11 per cent. in each group are still under treatment, and 17 and 33 per cent. have been lost track of. The venereal morbidity in the Belgian army is probably higher than in other armies, as the men had no homes to go to when given furloughs, their homes and families being in the hands of the Germans. In treatment he applied the same measures as in peace times, with as scrupulous care, endoscopy, etc.

52. **Latest German Method of Antisepsis.**—The antiseptic is injected deep into the tissues all around the focus, making from seven to thirteen or more deep injections to encircle the focus. This is expected to form a barrier to wall in infection and keep it from spreading. The antiseptics preferred are derivatives of quinin: ethylhydrocuprein (optochin) and isoctylhydrocuprein (vuzine). The latter is extracted from a tropical plant *Remijia cuprea*, the Brazilian *quina do serra*. Another method by which this principle is applied is by expelling the blood from the limb and keeping it out with a tourniquet. Then 100 c.c. of a 1 per thousand or ten thousand solution of the antiseptic is injected into a vein, under considerable pressure. In half an hour or an hour the tourniquets are removed. Tuberculin has been injected in this way and other drugs, but serious by-effects have been observed, gangrene and pyemia with some war wounds. The addition of 0.1 gm. of lactic acid to the liter of the solution of the antiseptic prevents precipitation from the alkaline blood left in the veins. The favorable evolution of war wounds treated in this way has recently been ascribed to the biochemical properties of the quinin rather than to any direct antiseptic action, so that the principle, after all, Voncken says, is like that of Carrel's method.

Bulletin de l'Académie de Médecine, Paris

Oct. 22, 1918, 80, No. 42

54 *Air in Transmission of Epidemics. A. Trillat.—p. 369.
55 *Surgical Suturing of Lips Together. H. Morestin.—p. 372.
56 *Gas Embolism in Caisson Work. G. Jean and Viguier.—p. 377.
57 Operation on Frontal Sinus Through Nose. J. Bourguet.—p. 378.

54. **Microbes in the Air.**—THE JOURNAL has summarized some of Trillat's previous communications on the condensation of moisture on microbes floating in the air. He says here that this moisture condensed on the microbes serves as a culture medium as it dissolves gases that come in contact with it, especially the gases in expired air. The microbes expelled in droplets of spray in coughing and sneezing are preexisting microbes, but the microbes floating in the air in the condensed-moisture culture medium are liable to propagate and send forth swarms of newly born microbes to carry on the game. This invisible microbian mist condenses on cooler surfaces, as on the clothing when coming into a warm room from out of doors. The more vitiated the air, the more concentrated the culture medium formed by the moisture condensed on the microbes. A draft of air may sweep a cloud of these newly born microbes far from their primal source, and explain many otherwise mysterious cases of contagion. Or when the moisture condenses on the cooler surface of clothing this may provide the microbes with a still better culture medium from sweat or other matter on the clothing or hair. The propagation of the microbes may thus keep on indefinitely, and they may be spread broadcast wherever the person goes. Trillat's research has demonstrated the actual occurrence of all these phenomena with ordinary microbes, and naturally, he says, they must occur in a still more pronounced form the smaller the microbes, such as the filtrable causal agents of influenza.

55. **Suturing the Lips Together.**—Morestin expatiates on the advantages of cheilorrhaphy after an operation on one or both lips, or a burn. It averts cicatricial retraction and ensures as symmetrical a healing as conditions permit, the sound lip serving to balance and hold in a good position the lip that is being repaired. The patient can be fed easily from a catheter or nursing bottle introduced at the corners of the lips. His patients thus treated found no difficulty in spitting and smoking and none complained, while this cheilorrhaphy rendered possible certain autoplastic operations otherwise impossible to realize.

56. **Gas Embolism in Caisson Work.**—In the case described the workman was new at the task and the third day developed intense pain in his left thigh with other symptoms of caisson sickness, followed by a vast eschar in the left buttock,

corresponding to the course of the deep gluteal artery. Recovery followed under inhalation and subcutaneous injection of oxygen, with camphorated oil and strychnin, and excision of the devitalized tissue. It is the only instance Jean and Viguier know of in which the bubbles of gas were large enough to obstruct an artery of this size.

Journal de Médecine de Bordeaux

October, 1918, **88**, No. 10

58 *Bone Grafts. Charbonnel.—p. 279.
59 Early Detection of Tuberculosis in Soldiers. Meslier.—p. 289.
60 Secondary Suture of War Wounds. Mongie.—p. 291.
61 *Mishaps with 914. Petges, Gratiot and Cottu.—p. 293.
62 *Enteropathies in Soldiers. Dargein.—p. 298.

58. **Free Bone Grafts.**—Charbonnel discusses the various methods for bridging the gap after loss of a section of the tibia, and describes the successful outcome in a case in which the fibula of the man's other leg was used for the graft. The fine results in this case justify, he thinks, the extensive application of this method of autografts with bone plus periosteum from the sound mate. The exact technic is described with illustrations. His case was subjected to a trying test, as at the fifth month the patient fell and fractured both the graft and the other bone in the leg. But they healed well and by the twentieth month radiography shows that the graft has not lost any of its opacity, while it is gripped firmly by callus coming from the stumps of the tibia. The graft itself does not seem to have participated in the callus production.

61. **Mishaps with Neo-Arsphenamin.**—Petges reports seven cases of severe therapeutic complications and one death among the 3,500 injections of this drug in the last seven months at an army skin and venereal center. The two cases with convulsions rapidly improved; the two with grave encephalomyelitis, and the two with the same plus meningitis also recovered but very slowly, and certain sequelae still persist. The graver cases were with recent infection and the primary dose was small. The one fatality occurred after the second injection, and the next gravest cases after the fifth and sixth injections. The paraplegia persisted for several months and in one case was accompanied with hematuria and gangrenous cystitis but clinical recovery followed in six months, except for slight paresis of the legs and Babinski sign. There had been preceding mercurial treatment only in one case as some of these patients were in the chancre stage. Neurofixation of the syphilis virus must be excluded, and as the technic cannot be incriminated, the disturbances must be ascribed to the drug itself. The patient should be warned of the possible danger from arsenical preparations, and he should assume some responsibility as well as the physician.

62. **War Enteropathies.**—Dargein emphasizes the necessity for explaining to the men the mechanism of the reflex sensations of which they may complain, and which are out of all proportion to the insignificant initial disturbance. He warns against measures liable to breed the "sincere pseudosick," the *pithiatiques de l'intestin*. An individual card or booklet for the pathologic data of each man would save a great deal of groping in the dark, and save many cases of purely functional disturbance from having the general health compromised by ill-advised therapeutic and dietetic measures.

Paris Médical

Sept. 28, 1918, **8**, No. 39

63 The Medel Sanatorium. E. Sergent.—p. 245.
64 *The Meninges in Malaria. L. Barrillon and others.—p. 250.
65 *Parnal Tetanus. H. Français.—p. 255.
66 Remote Sequels of Acute Poliomyelitis. Pfeiffer.—p. 257.

Oct. 19, 1918, **8**, No. 42

67 *Aviators' Heart. G. Etienne and G. Lamy.—p. 293.
68 *Opium in Heart Disease. Laubry and Esmein.—p. 296.
69 *Complete Juvenile Arrhythmia. L. Gallavardin.—p. 301.
70 *Rupture of Heart Valves by Shell Wind. Perrin and Richard.—p. 304.
71 *Slow Malignant Endocarditis. R. Debré.—p. 308.
72 *Serofibrinous Pericarditis Soulié and Benhamou.—p. 313.
73 Viscosity of the Blood in Heart Disease. M. Leconte.—p. 316.

64. **The Meninges in Malaria.**—Instead of being a disease of remote colonies, malaria is entering the current practice of physicians throughout France, as so many native and colonial soldiers have spread malaria germs broadcast. In this article a series of ten recent cases are reported in which meningism or meningitis dominated the clinical picture. The patients were all between 20 and 22 except one child of 4. The malarial parasite has never been found in the spinal fluid, so the meningeal disturbances must be of a toxic nature. This should be suspected with every meningeal reaction in persons known to have malaria or to have lived in a malaria infested region, and the blood should be examined.

65. **Partial Tetanus.**—Eleven days after a seton wound of the calf, intense pain, contracture and muscular spasms developed in the leg and persisted for a month without other symptoms. By the end of two months and a half, recovery was complete except for slight weakness in that leg. Intraspinal injection of 2 per cent. magnesium sulphate attenuated remarkably the pains and spasms, although it did not shorten the course of the disease.

67. **Aviator's Heart.**—Etienne and Lamy found in examining thirty aviators, including a number apparently healthy, that the left ventricle was enlarged, the apex rounding. This occurs early and persists, and is more pronounced the higher the flights. The hypertrophy keeps moderate, and there was associated dilatation of the right heart only in one instance. They warn aviators against useless feats, sudden changes of level, and abrupt rises and descents when such unnecessary strains on the circulation can be avoided. With care, the heart which has thus adapted itself to aviation will function normally.

68. **Opium in Heart Disease.**—Laubry and Esmein expatiate on the harmlessness of morphin and its success in many cases of heart disease. They regard the symptoms from cardiovascular affections as the result of physical rather than chemical forces, more dynamic and mechanical than toxic. There is no need with them to fear the specter of elimination of waste and danger from its brief partial suspension. The beneficial action of morphin on the vasomotor nerve centers can thus be utilized to the full. It usually reenforces the action of the usual heart tonics, and paves the way for the more slowly acting drugs to display greater efficacy. When the distress of angina pectoris persists under the usual measures, morphin should be injected and even repeated, warning the family of the gravity of the circumstances and that abstention may be graver than the injection. The same is true, they say, of acute edema of the lung, agreeing with Vaquez "that the injection of 0.01 or 0.02 gm. morphin is the best means to remedy the sudden danger which results from an attack of acute edema of the lung." Whatever the cause of the acute pulmonary edema, there occurs a sudden vasodilating excitation of the vessels in the lungs. In this sudden upset of the vasomotor balance, entailing a sudden profuse bronchopulmonary secretion, obstructing the air passages, why not utilize the drug which has an instantaneous sedative action on the vasomotor and secretory centers? Some are deterred from it by the fear of paralyzing some salutary secretion, especially renal secretion, and adding a drug poison to the unknown poisons from which the organism is already suffering. But in Vaquez' and the writers' experience they have always had cause for rejoicing that they had not been frightened away from its use. They always apply local or general venesection, with or without camphorated oil, but it was almost the constant impression that the subsidence of the secretory storm was the result of the sedative injection. In some cases of recurring pulmonary edema with aortic disease of different kinds, the morphin alone proved as effectual as when associated with venesection, when conditions prevented the latter. The same favorable result was obtained even in a case of sudden edema with high blood pressure and advanced kidney disease. Morphin is equally effectual also in relieving the mechanical, secretory and nervous disturbances entailed by paroxysmal hypertension, as in lead colics, sudden amaurosis, transient aphasia, asthmatiform attacks, and dyspnea without organic cause. Even in cases of albuminuria with high blood pressure and scanty urine, the attacks of dyspnea subsided under the morphin, the pulmonary and renal symptoms disappearing

together as a flood of urine was voided. The oliguria which seemed to contraindicate the morphin must have been itself the result of some spasm of the renal vessels. With permanent high tension, greater caution is necessary, but they have often relieved continuous dyspnea and insomnia in these patients with 0.2 gm. Dover's powder plus 0.1 gm. digitalis powder. They discuss further the indications for morphin in actual heart disease. With pulmonary embolism, congestion and acute edema, a local injection of morphin arrests the dyspnea and a Dover's powder maintains the salutary immobilization, and by keeping the entire organism quiet suppresses other factors liable to further hamper the heart. Paroxysmal tachycardia may also be relieved by the opiate when the pains and distress resemble those of angina pectoris. Among the formulas given is one in which 0.02 gm. each of caffein and pulverized opium are mixed with 0.2 gm. each of quinin sulphate and antipyrin. A cachet of this can be ordered every three hours, thus keeping the patient under the influence of mild opium medication for several days. To soothe attacks of pain, when instantaneous action is not imperative, they combine morphin with the rapidly diffusible vasomotor drug, trinitrin. Their formula calls for 0.05 gm. morphin hydrochlorid; 60 drops of a 1 per cent. alcoholic solution of trinitrin; 20 gm. distilled cherry laurel water, with plain distilled water q. s. to 100 gm. Two or three teaspoonfuls of this can be taken during the day.

69. **Juvenile Arrhythmia.**—Gallavardin describes six cases of total arrhythmia without valvular lesion. Some of these arrhythmias seem to cause no disturbance, but the outlook is much graver than with simple extrasystolic arrhythmia.

70. **Rupture of Heart Valve.**—In the man of 36 and woman of 46 the rupture occurred from shell concussion, without direct injury, but obesity or other predisposing cause was manifest.

71. **Slow Malignant Endocarditis.**—Debré describes the anemic, the pseudomalarial, nervous and rheumatismal forms among others, and mentions a psychic form. The streptococcus can usually be incriminated, but the pneumococcus, influenza bacillus, etc., may sometimes be responsible. In one case, in a child of 8, the typhoidal state and joint troubles were not accompanied by any appreciable symptoms on the part of the heart, and the endocarditis was only casually discovered. It proved fatal in less than five months. This type of endocarditis is most frequent in adolescents and young adults, and almost invariably there is an old history of acute articular rheumatism, with some recent infectious sore throat or other process in the mouth or in the female genitals. The skin manifestations are of primordial importance; purpura is more frequent, but the pathognomonic manifestation is a transient and painful erythematous eruption, minute red lumps appearing in successive waves on different regions of the skin. The pulpa of fingers and toes is a favorite site. The sudden appearance of this special eruption at the tip of the finger may suggest a coming felon. Periods of apyrexia may intervene, but the disease is always fatal in from six to twelve months.

72. **Serofibrinous Pericarditis.**—This affection should always suggest a tumor in the mediastinum. In a case described, necropsy revealed two tumors, and the pericarditis was symptomatic of the irritation from them.

Presse Médicale, Paris

Oct. 24, 1918, **26**, No. 59

74 *Epidemic Jaundice in Roumania. J. Cantacuzène.—p. 541.
75 *Tumors of Large Intestine. V. Pauchet.—p. 543.
76 *Secondary Endocarditis in Heart Disease. R. Lutembacher.—p. 546.
77 Present Status of Icterohemorrhagic Spirochete. M. Romme.—p. 548.
78 *War Wounds of Nerves. Congress Report.—p. 549.
79 *Treatment of Gonorrhea. Congress Report.—p. 551.

74. Practically the same article was reviewed November 23, p. 1779.

75. **Tumors of Large Intestine.**—Pauchet has had very favorable experiences with resection of long segments of the large intestine for inflammatory and tuberculous tumors and for cancer. Once released from its moorings, the large intestine can be pulled around as readily as the small intestine. The ultimate outcome depends on the character of the cancer, and cancers of the large intestine are among the less virulent. By leaving a strip of the mesentery and the marginal artery the circulation is guarded, while the anatomy of the lymphatics of each segment of the colon allows the segment and its blood and lymph vessels to be removed in one block. He gives illustrations of the technics required for tumors at different points in the bowel. If there is occlusion he makes an artificial anus and waits a month before resecting the tumor. If the bowel is still permeable, for a tumor in the descending colon, he draws the loop out and makes a side-to-side anastomosis at once, or keeps the tumor loop thus exteriorized for a week, first suturing together, like two gun barrels, the legs of the loop just below the skin. After cutting off the projecting portion level with the skin, he waits a month before the final anastomosis of the stumps. A tumor in the sigmoid region he resects at once, and ties the upper stump on a rubber tube and invaginates this in the rectum by drawing down with forceps the lower end of the tube and out through the anus. The tube drops out spontaneously in about ten days. With a tumor in the transverse colon, he makes an end-to-end anastomosis after resection, fastening the point of junction to the abdominal wall. The worst that can happen is an abscess in the wall, with a briefly transient fistula.

76. **Secondary Endocarditis in Heart Disease.**—Lutembacher says that infectious endocarditis is responsible for the fatal outcome with valvular defects more often, probably, than asystoly. In such patients, any intervention on the veins requires the most minute asepsis, as the dilated cavities of the heart offer a peculiarly favorable site for location of an infectious process. If this process is of an abortive type, fever is its only manifestation. It keeps up irregularly for months, sometimes accompanied by chills and malaise, but its essential character is its extreme tenacity. The preexisting heart lesion does not seem to be modified, and the fever is ascribed usually to every cause but the right one. By the end of six or twelve months, however, the debility becomes extreme and death may ensue, even without embolism, a minute abscess in the wall the only necropsy finding. In the subacute form, septic thrombosis and embolism dominate the clinical picture. These are particularly redoubtable when it is a question of pregnancy or an operation or overexertion of any kind. It is by escaping such secondary infectious complications that some persons with serious valvular defects live to an advanced age while others with milder lesions die young. Treatment of these secondary infectious processes is discouraging. Intravenous injections of colloidal metals do no good, and he has never witnessed any benefit from specific serums and vaccines. Heart tonics had better be suspended as they lose their previous efficacy. This secondary infectious endocarditis is one of the main causes of what is called irreducible asystoly.

78. See Paris Letter, page 1759.

79. **Treatment of Gonorrhea.**—This was the leading question discussed at the French Urologic Congress in October, and the main addresses are summarized here. The reports bear on both military and civilian conditions. Janet related that abortive treatment is successful in about two third of the cases provided that it is begun within twelve hours after the first signs of a discharge. He has found antigonococcus vaccine beneficial in gonorrheal rheumatism, and he thinks a vaccine may yet serve in local treatment of the primary gonorrheal process when the technic is better worked out. Cathelin stated that, at most, the vaccine is useful only for the complications of gonorrhea and has no influence on the evolution of the urethritis itself. The *centre d'urologie* of the fifth district had 300 simple and 704 complication cases in the hospital; all the others were outpatients and 25,000 treatments were given. He urged standard uniform treatment with permanganate, but Hamonic extolled the advantages of iodin vapors pumped directly into the urethra from the iodin heated in an ampule. Le Fur warned that the seminal vesicles are involved more often than is generally recognized, and this explains return of symptoms, when the gonorrhea had been apparently entirely cured.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 2, 1918, 48, No. 44

80 *Progress in Ophthalmology. O. Haab.—p. 1457.
81 *The Tenth Rib. H. Frey.—p. 1463.
82 *Influenza in Children. H. Schultheiss.—p. 1467.
83 *Predetermination of Sex. P. Scheurer.—p. 1473.

80. **Recent Progress in Ophthalmology.**—Haab insists that the new legislation on industrial accidents and workmen's compensation makes it imperative for the general practitioner to be able to recognize and apply first treatment to injuries of the eyes. Intensive illumination from the side in examining the eye with the magnifying glass is imperative. A 150 candle power electric light is his preference; the ordinary street electric current suffices for this. A binocular magnifying glass or corneal microscope is extremely useful, especially when used with Gullstrand's Nernst *Spalt* light. Gullstrand's magnifying stereoscope for examination of the eye is also a great assistance in examinations. Another recent improvement is the use of light free from red rays, as Vogt advocates. In teaching ophthalmology Haab lays great stress on wax models and on demonstration microscopes. He keeps two of the latter where the students have constant and ready access to them, the specimens being turned by hand into the field, while they are locked in against injury. The Swiss government has appointed a woman artist to make wax models and casts for the clinics as needed. One model of the half of the head of a lad with tuberculosis of the cornea shows the suppurating fistula of the lacrimal sac and swelling of the glands in front of the ear—a typical case of Parinaud's conjunctivitis, in which tubercle bacilli of the bovine type were cultivated from the lesions. There was a history of a blow on the eye with a stable broom three months before the first symptoms. Under tuberculin treatment and diverting the secretions of the lacrimal gland into the nose, the cure is now practically complete fifteen months later. Catheter treatment of dacryocystitis seldom proves effectual.

Further progress in ophthalmology has been realized with roentgen treatment of cancer of the eyelids, but the greatest advance in recent years, he declares, is the treatment of gonorrhea of the eye by subcutaneous injection of 1 c.c. of a typhoid bacilli vaccine, containing 5 millions, the injection repeated the next day, or later. This method was advocated in 1917 by Szily and Sternberg who reported the complete cure in a few days of sixty-eight cases in adults. Haab tried it with considerable skepticism on a girl of 5 with violent inflammation of the eye. In two days the eye was free of secretions and cocci. In his five other cases the results were not so promptly apparent, but the cure was complete in all in two or three weeks, and injury of the cornea averted. The adult typhoid cultures, grown on agar, are washed off with saline and the suspension is brought to 200 c.c. It is then vibrated for half an hour, and 0.5 per cent. phenol added. More than two injections can be given at need. There is a brief febrile reaction; then in two or three days the inflammation in the eye subsides and the cocci disappear. The effect is less pronounced in ophthalmia neonatorum, but in one new-born child the severe gonorrheal ophthalmia had completely healed in two weeks, a result attainable otherwise only in from five to eight weeks. We know that the new-born do not react to vaccination as a rule. Genital gonorrhea in young and old does not seem to be affected by the typhoid vaccine.

81. **The Floating Tenth Rib.**—Frey is an anatomist, and he insists that the floating tenth rib is not pathologic but a normal phenomenon for a certain stage of phylogenetic development.

82. **Influenza in Children.**—Schultheiss states that while at first children seemed to escape influenza, the last few weeks have brought numbers of cases to the children's hospital, and there have been five deaths. The children did not succumb to respiratory disturbance so much as to the general toxic action of the infection, with the respiration typical of acidosis. Three children with whooping cough in one family all died, the blood in two showing 100,000 leukocytes with predominance of lymphocytes. In one case a child developed typical Landry's paralysis and in another paralysis of one arm, the eighth day. The paralysis in both gradually subsided but not completely.

83. **Predetermination of Sex.**—Scheurer analyzes the four main theories as to the predetermination of sex, those based on the assumption that the sex is preformed in the ovum or determined by the special structure of the spermatozoon, or by the battle of the sexes from the same or crossed heredity from the parents, or the assumption that the sex is determined by the age of the ovum at the day of conception. His conclusion is that the problem is still unsolved, but that the latter theory has much to sustain it. He describes Siegel's statistics in this line. (They were mentioned in THE JOURNAL, March 17, 1917, p. 883.) He found that in 180 cases in which the exact day of the husband's brief furlough was known and the date of the beginning of menstruation, 80 per cent. were boys of those children born when cohabitation had been within the first nine days after the beginning of menstruation; 80 per cent. were girls of those with cohabitation the fifteenth to the twenty-third day. Between these periods the sexes were about equally divided. From the twenty-fourth to the twenty-sixth day no conception occurred, and the twenty-seventh day only a total of five boys were born. If the proof can be produced that an ovum can actually survive menstruation, then Siegel's theory would have a basis. One observation on record sustains this. His' report of having found an unfecundated ovum in the human tube at the fifth day from the beginning of menstruation.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 18, 1918, 39, No. 66

84 Measurement of the Velocity of the Blood Stream by Radioscopy of the Heart Compared with Sphygmodynamometer Findings. C. Talentoni.—p. 643.

Pediatria, Naples

November, 1918, 26, No. 11

85 Leukolysins in Leukopenic Blood. M. Sindoni.—p. 617.
86 *Tuberculids in Children. A. Gismondi.—p. 635.

86. **Tuberculids in Diagnosis and Prognosis of Tuberculosis in Children.**—Gismondi discusses in particular the papulonecrotic type of tuberculids and their frequently grave prognosis. The literature cited confirms the unfavorable outlook with this form of tuberculids. They are generally found on the back, buttocks and limbs. In none of the cases described had there been preceding measles, although others have reported the development of these tuberculids after measles. In one case, however, there was a widespread eruption of tuberculids accompanying a tuberculous bronchopulmonary process following on scarlet fever. This child was 6 years old, with manifestations of inherited syphilis. The papulonecrotic tuberculids may be the only sign of tuberculosis in an infant or older child. By seeking them, many a puzzling diagnosis may be cleared up at once.

Policlinico, Rome

Oct. 27, 1918, 25, No. 43

87 *Factors in Freezing of Feet. V. Mazzi.—p. 1017.
88 *Bleaching Powder in Sterilization of Skin. G. Egidi.—p. 1023.

87. **Freezing of the Feet.**—Mazzi's experience with trench freezing and frost-bite has shown that the humidity of the air is the predominant factor, next in importance is the long standing still. The cold itself is only third in importance.

88. **Bleaching Powder for Sterilization of the Skin.**—Egidi extols the superior advantages of chlorinated lime for sterilizing the skin, its efficacy, harmlessness, and lack of irritating properties for the hands of the physicians and nurses. He has been using it systematically in a saturated solution in his service for many months. As it turns blood and raw surfaces brown, he has found this a useful guide in excising devitalized tissues. (The Italian term is *cloruro di calce.*)

Riforma Medica, Naples

Sept. 28, 1918, 34, No. 39

89 *Plantar and Popliteal Reflexes. A. Roccavilla.—p. 766.
90 *Comparative Nutritive Value of Cereals and Eggs. M. Maurizi.—p. 768.

91 Prophylaxis of Anaphylaxis by Small Preliminary Injection of Serum. A. Azzi.—p. 774.
92 Galileo and the Medical Sciences. A. Ferrannini.—p. 777.

Oct. 5, 1918, 34, No. 40

93 Influenza. G. Arnone.—p. 786.
94 Hemorrhage After Nephrotomy. P. Tasca.—p. 790.
95 Scurvy in Italian Troops in Macedonia. C. Vallardi.—p. 793.
96 Tuberculosis of Male Genital Organs. E. Aievoli.—p. 794.

89. **Popliteal and Plantar-Cremaster Reflexes.**—As the subject lies prone and the popliteal space is tapped, certain physiologic reflexes occur. Roccavilla discusses the pathologic import of variations in the reflexes thus induced, and also in the variations in the cremaster reflex induced from the sole.

90. **Comparative Nutritive Value of Foodstuffs.**—Maurizi reviews recent investigations in this line, and reports personal research on rats. All tend to demonstrate that wheat and corn or their pure proteins have less nutritive value than eggs. It may be impossible to demonstrate this inferiority by a deficit in the nitrogen balance, but it becomes plainly manifest in the reduction in body weight.

Rivista Critica di Clinica Medica, Florence

Oct. 5, 1918, 19, No. 40

97 *Pathology and Treatment of Asthma. R. Massalongo.—p. 469.

97. **Suprarenal-Pituitary Treatment of Asthma.**—Massalongo discusses the pathology of asthma as a perversion of the physiologic act of respiration. There is a centripetal and a centrifugal factor involved, and he regards the latter as of paramount importance while most clinicians incriminate almost exclusively the centripetal influence. He is convinced that the latter is merely the occasional cause. It is useful to get rid of this factor, but the primal factor is the inherited or acquired asthmogenic state of the medulla oblongata. It is a neurosis of the bulb and, in particular, of its respiratory center. There seems to be a close analogy between asthma and epilepsy. Persons with asthma have always proved to be neurotic, neuropathic, in his clinical experience. Treatment should aim to discover the source of the peripheral or internal centripetal irritation inciting the paroxysm, but the main point of attack should be the morbid sensitiveness of the asthmogenic center. The nervous system should be toned up by treatment as for neurasthenia, but the chief reliance should be on combined epinephrin and pituitary treatment. This, he says, has given marvelous results impossible to realize with either alone. He does not hesitate to call it an *infallibile metodo di cura dell' accesso astmatica*, and to say that his eight years of experience with it have fully determined its reliability. The dose found most effective was 0.0008 gm. of epinephrin (adrenalin) and 0.0004 gm. of pituitary extract (pituitrin), in solution in 1 c.c. injected subcutaneously. Even as little as 0.0002 gm. may prove effectual. The prompt action suggests that vasomotor paresis in the medulla oblongata may be the cause of the attack of asthma, as these substances overcome any such tendency at once. Their immediate efficacy further confirms the conception of the medulla as mainly responsible for the asthma.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

May, 1918, 9, No. 5

98 *Diffusion of Antivariola Vaccine in Glycerin. T. Bayma and A. Medeiros.—p. 97.
99 Typhoid at S. Paulo. B. R. Pestana.—p. 101.
100 Various Therapeutic Experiences. C. Ferreira.—p. 116.

98. **Diffusion of Filtrable Viruses Through Glycerin Vehicle.**—April 13, 1918, p. 1123, THE JOURNAL summarized Remlinger's statements in regard to the diffusion of rabies virus through the fluid in which tissues from rabid animals had been submerged. Bayma and Medeiros have had similar experiences with the glycerin in which cowpox material had been soaked, and they remark that the same probably will occur with any of the thirty ultramicroscopic viruses known at present. Photographs of children and of calves vaccinated with the glycerin thus left in contact with the cowpox pulp show typically fine vaccination pustules, sometimes even when the glycerin had been thus treated only for three days. The pustules in the children developed silently, without any local or general reaction; at most there was only a red border to the pustule. The cowpox virus seems to be more readily diffusible than rabies virus. None of the experiments gave negative results in any of the twenty of the five different series, while Remlinger had sixteen failures in his ninety animals with rabies virus and eleven died of septicemia. The same positive result was obtained in Bayma's eight children, there being scarcely any failures when there had been six days of contact. Parallel vaccinations with the usual whole vaccine showed constantly a more pronounced local reaction than with the glycerin alone, but in all the experiences, in the human and in animals, the typical pustule effect was unmistakable.

Brazil-Medico, Rio de Janeiro

July 27, 1918, 32, No. 30

101 Gregarina Parasites of Arthropods. C. F. Pinto.—p. 233.

Aug. 3, 1918, 32, No. 31

102 Flagellate Parasites. O. O. R. da Fonseca.—p. 241.
103 *Arsenical Treatment of Syphilis by the Rectum. S. Araujo, Jr. —p. 241. Commenced in No. 30, p. 234.
104 Some Clinical Notes. R. da Silva.—p. 243.

103. **Arsenical Treatment of Children by Way of the Rectum.**—Araujo reviews the extensive literature that has accumulated on the administration of arsphenamin preparations by enteroclysis. His list includes Oulmann and Wollheim's article in THE JOURNAL, Sept. 13, 1913, p. 867. They declared that the intrarectal route should be given the preference for children, and Araujo agrees with them, except that he regards mercury as the ideal remedy for syphilis in children. But when mercury fails, or exceptionally prompt action is necessary, or for other reasons arsphenamin is to be preferred, the enteroclysis method offers superior advantages for children. He reports four cases in detail, out of a much larger experience, emphasizing that he never witnessed any phenomena indicating a reaction, while the syphilitic lesions rapidly healed, even those in which spirochetes abounded. The results were invariably good, and the technic is the simplest possible. He used a 20 c.c. syringe and small Nélaton catheter. The bowels were emptied first, when possible, and the child constipated with paregoric, or 1 or 2 drops of laudanum were added to each injection. One female infant of 2 months was given a rectal injection of 0.03 gm. of Billon's 914 in 10 c.c. of distilled water, with 1 drop of laudanum. The injection was retained ten hours. Six days later another injection was given, which was retained only half an hour; two days later the injection was repeated with a dose of 0.08, retained for twelve hours. Five more injections were given, the last three with 0.10. Notwithstanding these large doses, there was never any appreciable reaction, and by the fourth, marked improvement was apparent, the papulous syphilids and patches in mouth and around the anus and vagina having completely retrogressed. The children were given usually about six intrarectal injections in doses of from 0.05 to 0.10 gm. at five or eight day intervals. The injection was generally retained from six to eight hours.

Gaceta Medica de Caracas

Sept. 30, 1918, 25, No. 18

105 *Symposium on Ambard's Constant. V. Ruiz, L. Razetti, A. Benchetrit and J. B. Ascanio.—p. 187.

105. **Ambard's Ureosecretory Constant.**—Razetti laments that to date we have no reliable index of whether the liver and kidneys are able or not to stand general anesthesia. This can be estimated to date only by the comparison of the clinical data. Biologic chemistry has not given us yet the reliable guide which the surgeons are clamoring for. Even Ambard's constant has not proved to be the longed for practical guide in this line, whatever its usefulness otherwise. Benchetrit related that he has dropped the Ambard formula as its practical value does not compensate for the complicated technic required, especially, he adds, as the training of medical students in mathematics is in inverse proportion to the square root of the necessities of modern medicine—to parody Ambard's law. But from the purely scientific standpoint, he lauds the discovery of Ambard's laws as a gigantic progress, lifting medicine from empiricism toward the high station of an exact science.

Repertorio de Medicina y Cirugia, Bogotá

September, 1918, **9**, No. 12

106 *Stab Wound of Spinal Cord. E. Montaña and M. Rueda.—p. 623.
107 *Paraurethral Passages. R. Zapata.—p. 644.

106. **Stab Wound of Spinal Cord.**—Montaña and Rueda comment on a case of compression of the spinal cord by a fractured vertebra with partial section of the cord. The operation was restricted to lifting up the compressing lamina with probe and fingers, and clearing out sequesters and clots from below, leaving a rubber drain tube. Relief was immediate and recovery followed, but certain sequelae suggest that it would have been better to perform laminectomy at the time. They remark, however, that this is perhaps the first case of recovery after such a serious injury of the spinal cord, notwithstanding the timid and simply exploratory operation. The symptoms indicated that the right posterior roots and cords had been severed, along with the direct and crossed pyramidal tracts of the same side.

107. **Para-Urethral Passages.**—Zapata refers to the diverticuli or the passages from infected glands which are found opening into the urethra in gonorheal urethritis. They must be treated by catheterizing the minute passage, massaging the gland over a straight Beniqué, following with injection of some modifying substance such as silver nitrate or iodin. If these measures fail, the passage must be cut open its entire length.

Revista Clinica, Medellin, Colombia

September, 1918, **3**, No. 10

108 *The Pains with Abdominal Disease. G. J. Gil.—p. 450.
109 Gummatous Meningitis. G. T. Villa.—p. 466.
110 Cerebral Syphilis. S. Serna G.—p. 473.
111 Appendicitis with Ascarides. F. Osorio V.—p. 479.
112 *Medical Ethics. N. A. Rojas.—p. 491.

108. **Abdominal Pain in Diagnosis.**—In the case described the young woman for about eight months had been having digestive disturbance, constantly growing more pronounced and finally accompanied by intense pain in the epigastrium, not radiating, and not constant, sometimes soothed and at other times aggravated by eating, occurring at times before and at other times after eating. Occasional vomiting but no blood in vomit or stools. The epigastrium and appendix region were extremely tender. A gastric ulcer had been assumed, but the operation revealed that the appendix was drawn up by a kink in the mesentery, thus pulling on the region above, and inducing spasm of the pylorus. All disturbances ceased at once after appendicectomy. Gil compares with this case of appendicular dyspepsia the other abdominal affections liable to induce pain, emphasizing the various differential features of the pains. The appendix disturbances in his case were chronic from the start, as also the variation in the pain from day to day and from meal to meal. He advises to keep the patient under observation for a week and watch the type of the pains. He warns that with visceroptosis removal of the appendix will not banish all the symptoms. Chronic constipation with acute attacks of colic is also liable to prove misleading.

112. **Medical Ethics.**—Rojas discusses medical deontology in general terms, citing Faguet, Brouardel and others. He emphasizes in particular that as the principles of ethics should guide the physician's dealings with his colleagues and his clients, they should also guide his pen in his published works of a scientific nature.

Revista de la Universidad de Buenos Aires

August-September, 1918, **38, 39**, No. 137

113 *Ruptures of the Uterus. J. B. González.—p. 347. Conc'n.
114 The First Curriculum, 1822. R. Levene.—p. 511; A. Saenz.—p. 520.
115 Research on the Double Decomposition of Silver Nitrate and Ammonium Bicarbonate. O. F. F. Nicola.—p. 539.
116 Influence of the Soil on Evolution of Cancers. A. H. Roffo.—p. 567.

113. **Rupture of the Uterus.**—This 152 page instalment of González' monograph brings the total to 209 pages, with sixty-three illustrations. He reviews the history of the subject from Hippocrates to date of writing, the causes, remote and direct, and tabulates the indications for treatment, with the outcome in twenty-six cases. In only one of his spontaneous rupture cases was the uterus in such a state of degeneration that the rupture was inevitable. In all the others it could probably have been avoided with extra care. He declares that podalic version is dangerous even when done by an expert. The condition of the resistance of the uterine wall should be ascertained before attempting it, investigating the obstetric and gynecologic history, and examining the uterus, especially the cervix, with palpation and the speculum. The measures required to combat the hemorrhage are liable to aggravate the state of shock and invite peritonitis, the main complications. Iodoform gauze drainage alone proved successful in the four cases in which it was applied, but this is possible only when the primary hemorrhage is slight, and there is always danger of its starting up again. Tamponing with iodoform gauze by the genital route is difficult, insecure and dangerous, as he shows by some necropsies. It is liable to kink and interfere with the nutrition of various tissues. In two of his cases abscesses formed in the vicinity. At the same time, it gave him 71 per cent. of recoveries and one continuous series of nine successful cases. In those with unfavorable outcome, the aggravation of the prognosis was due to the further injury from hastening the extraction of the fetus. Only in exceptional cases is it necessary to apply the tampon through a laparotomy incision. In his total cases, 52.35 per cent. of the women recovered.

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117 Professor C. Winkler. C. A. Pekelharing.—p. 917.
118 *Medical Significs. G. van Rijnberk.—p. 941.
119 *The Behavior of the Kidneys in Respect to Glucose. H. J. Hamburger.—p. 943.
120 Rapid Cure of Scabies. W. J. Bais.—p. 953.
121 Subphrenic Abscess After Pseudo-Appendicitis. H. A. Lubbers.—p. 955.

118. **Medical Significs.**—"Significs" and "semiantics" are recently coined terms to express workmanship in words, word-craft, and the deeper meaning of words. Van Rijnberk here commences a series of comments on medical word-craft.

119. **Behavior of Kidneys in Respect to Sugar.**—Hamburger recalls that sugar is always found in the blood but that it does not occur in normal urine. His research has apparently demonstrated that this difference is due to the fact that the membrane of the glomeruli possesses the property of holding back free glucose. This property of the membrane is influenced by the chemical composition of the fluid circulating through the glomeruli. In experiments on the frog, if the fluid passed through the glomeruli contained certain proportions of calcium, sodium and potassium, then the artificial "urine" after addition of 0.1 per cent. glucose contained 0.07 per cent. glucose, showing that 0.03 per cent. had been retained. Increasing the proportion of $NaHCO_3$ to 0.285 per cent., that is, to the proportion which normally occurs in the frog serum, then the glomeruli membrane holds back still more of the sugar, and the artificial "urine" is entirely free from sugar although the fluid passed through it contains 0.1 per cent. of glucose. The absence of sugar from normal urine is thus shown to be a phenomenon of permeability, and there is no reason for assuming any hypothetical binding of sugar with some colloidal substance—the *sucre virtuel* of Lépine. We have thus here a new form of physiologic permeability, in which the cells, under physiologic conditions, although readily permeable for salts, yet refuse to permit the passage of the equally crystalloid glucose. These researches throw light on the action of the usual therapeutic measures in diabetes and on phlorrhizin diabetes. Owing to the anatomy of the frog kidney, it was impossible to determine the share of the tubuli in this retention of sugar.

Hygiea, Stockholm

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122 The Development of the Treatment of Syphilis During the Centuries. J. Almkvist.—p. 1105.